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Ethically diverse students consistently perform at lower levels compared to their mainstream counterparts (Rychly & Graves, 2012). Some scholars suggest that this educational deficit is due to the cultural mismatch between educators and students. Culturally relevant pedagogy is an instructional approach that addresses the cultural misalignment between students and educators, by encouraging educators to consider the interaction between culture, learning styles, and instructional strategies. Although highly regarded, culturally relevant pedagogy is difficult to implement and assess due to its theoretical orientation.

This study employed a mixed methods technique called concept mapping to investigate and preliminarily define culturally relevant instruction. Students' Six, a professional development program aimed at teaching educators how to implement culturally proficient instructional strategies, was used as the context for this study. Students' Six participants identified a total of 141 instructional strategies that are indicative of culturally relevant instruction. Study results suggest that Students' Six's original six concepts could potentially be expressed as eight individual concepts grounded by three broad categories. As a result of this study, a draft rubric was developed that could ultimately be used to define and assess the implementation of culturally relevant instruction.

DEFINING CULTURALLY RELEVANT PEDAGOGY: AN EXPLORATION OF THE USEFULNESS OF CONCEPT MAPPING AND ASSESSMENT ENGINEERING FOR RUBRIC DEVELOPMENT

by

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To my people

APPROVAL PAGE

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CHAPTER I

INTRODUCTION

This chapter provides an introduction to multicultural education and its descendant culturally relevant pedagogy, by placing these two prominent instructional paradigms in the context of cultural diversity, and demographic shifts in the U.S. Next, the statement of the problem and purpose of the study provide rationale for the need to investigate culturally relevant pedagogy using Students' Six, a professional development program facilitated in Chapel Hill Carrboro County Schools. Lastly, the research questions that guide this study are presented and explained.

Demographic Shifts in the U.S.

One to two decades ago, the ethnic layout of the United States was primarily Black and White, but recent population shifts show that the current child (18 years and younger) population in most states represents a majority-minority, meaning that traditional minorities (ethnicities other than White) are the numerical majority. According to U.S. Census results, between 1980 and 2010 the non-Hispanic White child population decreased by 16%, while the non-White and Hispanic White child population grew by 106%. Moreover, between 2000 and 2010 the Hispanic child population grew by 39% (the majority of the child population growth is mostly attributable to Hispanics), and non-Hispanic Asian and Pacific Islander child populations grew by 31%. These statistics are

representative of a demographic transformation in the U.S.; the past majority will soon be a numerical minority. Blacks and Whites no longer dominate the current child population, and these data are indicative of the demographic future of the United States. (O'Hare, 2011; Kena et al., 2014, National Center for Education Statistics, 2013)

Although there has been a shift in the population, ethnically diverse students consistently perform at lower levels compared to their mainstream counterparts (Rychly & Graves, 2012). The Schott Foundation (2009) found that historically marginalized groups (Black, Native American, Hispanic, and students in poverty) have a 51% opportunity to learn (opportunity to learn operationalized as quality early childhood education, highly qualified teachers in K-12, college prep curricula, and equitable instructional resources) compared to their White counterparts. Some scholars argue that these differences in performance may be due to the mismatch of cultures between students and teachers. Data support this assertion, 45% of students enrolled in U.S. public schools are from culturally diverse backgrounds, while 84% of teachers are White females (National Center for Education Statistics, 2011; Butler & King, 2015). These statistics show that the ethnicities of educators are not reflective of the student population.

Educating diverse students requires a more purposeful look toward the interaction between culture, learning styles, instructional strategies, and the underlying biases and assumptions associated with traditional approaches to instruction (Gay, 2010; Ladson-Billings, 1994; Villegas & Lucas, 2002b). Given the demographic shifts in the U.S., teacher education programs and teachers have become increasingly aware of the need to

address the relationship between instruction and achievement of students from different backgrounds (Durden & Truscott, 2013; Butler & King, 2015). Preparing teachers to teach children of varying racial, ethnic, class, and language backgrounds is a critical topic in teacher education programs, literature, and among educators (Villegas, A. & Lucas, T. 2002a; Durden & Truscott, 2013).

Significance of Culture

Ethnic diversity equates to, and shines light on cultural diversity. There are several definitions of culture, all of which align with the premise of shared experiences. The American Evaluation Association (2011) and Frierson, Hood, & Hughes (2002) assert that culture is the shared behaviors and experiences of people including, but not limited to: languages, values, customs, beliefs, and ways of knowing. Similarly, Hitchcock, et al. (2009, p. 2) broadly defines culture as "the shared learned meanings and behavior derived from living within a particular life activity". A few noteworthy factors that contribute to, and influence culture are social class, race, ethnicity, gender, sexual preference, socioeconomic status, ethnic groups' cultural values, traditions, communication, learning styles, relational patterns, and educational status. Culture is a fluid, influential factor individually and societally; therefore, it should be considered during instruction.

Given the definitions of culture, it is plausible to conclude that teachers interact with students who identify with different cultures (i.e. experiences, perceptions, and meanings). Culture has direct implications on teaching and learning because it plays a significant role in the learning process and social adjustment of students (Au, 2006;

Vygotsky, 1978; Robles de Melendez & Beck 2007; Maasum, T., Maarof, N., & Ali, M., 2013). Further, research has shown that non-White students fare better, academically, when teachers purposely value their culture, acknowledge race, and are attentive to racial identity (Hanley and Noblit, 2009). For this reason, it is imperative that teachers are sensitive to cultural differences in order to address the diversity in their classrooms (Maasum et al., 2013). Thus, it is also important that teachers are equipped with the necessary skills to adequately meet the needs of culturally diverse students (Dieker, Voltz, & Epanchin, 2002; Prater, Wilder, & Dyches, 2008; Trent, Kea, & Oh, 2008 as cited in Hitchcock, et al. 2009).

Due to the ubiquitous nature of culture, it is profoundly important to address the influence of teachers' cultures on their beliefs and instructional practices. There is evidence to suggest that teachers' beliefs have significant influences on instruction and/or judgment (Knopp & Smith, 2005; Pajares, 1992; Smylie, 1995; Ambe, 2006; Banks & Banks, 2007; Fong & Sheets, 2004; Pollack, 2014). Additionally, because it is important that teachers recognize and understand their own worldviews before understanding the worldviews of their students, scholars assert that reflection is an effective technique for teachers to negotiate cultural differences between themselves and their students (McAllister and Irvine, 2000; Cochran-Smith, 2000; Loughran, Hamilton, LeBoskey, & Russell, 2004; Loughran & Russell, 2002; Schubert & Ayers, 1992; Stuart & Thurlow, 2000; Pollack, 2014; Gay, 2010).

Significance of Reflection

Gay (2010) and Pollack (2014) found that through reflection, student teachers invariably realize and accept that personal beliefs are grounded in analytical thought, empirical research, and instructional practices. Without deliberate attention to the importance of culture, many teachers fail to realize how their beliefs and/or negative messages are transmitted through class examples (Akiba, 2011). For example, some teachers unconsciously, but consistently, place specific groups in powerless, victimized roles, such as teaching the renaissance as a Western European, male dominated movement, or associating African Americans with poverty, low test scores, and broken families. Reflection has proven to be one of the more powerful techniques for helping teachers acknowledge their own biases, and become cognizant of culturally insensitive, habitual behaviors. Through reflection, student teachers understand why culturally diverse students respond differently to one another and learning experiences, and why culturally centered instructional strategies are imperative for student success (Durden and Truscott, 2013).

Culturally Centered Instructional Strategies

Three primary schools of thought that advocate for the recognition of culture during instruction are: 1) multicultural education; 2) culturally relevant teaching; and 3) culturally responsive pedagogy. Multicultural education asserts that behavior is a result of culture, and some cultures are more highly regarded in academic settings; therefore, educational disparities are produced as a result of value differences related to culture (Banks, 2010). Culturally relevant teaching is associated with critical pedagogy, which is

grounded in the belief that social and societal structures systematically marginalize some groups for the benefit of others (Gay, 1995b). Culturally responsive pedagogy is based on the belief that students' experience in the classroom (cultural and personal) determines interest and ultimately academic achievement.

Rychly and Graves (2012) categorized these three approaches in two simple categories. Multicultural education can be delivered to a classroom of students of the same culture (content and perspective represent varying cultures), but culturally responsive and relevant approaches must respond to the cultures in the classroom. Because of the similarities between culturally responsive and culturally relevant teaching, these two approaches will be discussed as a unitary concept and referenced as culturally relevant teaching.

The significance of promoting cultural harmony by studying multicultural education is documented in the literature (Dieker, Voltz, & Epanchin, 2002; Prater, Wilder, & Dyches, 2008; Trent, Kea, & Oh, 2008 as cited in Hitchcock, et al. 2009; Banks, 2010; Sleeter, 2012). In addition to acknowledging diversity, multicultural education raises awareness about inequality, discrimination, and stereotypes (Maasum et al., 2013). In this role, teachers become agents of social change by helping students view society from a critical perspective through discussion and dialogue in a democratic classroom (Banks & Banks, 2007). In doing so, teachers increase learning opportunities for all students, and become knowledgeable about the cultural backgrounds of their students (Banks & Banks, 2001; Banks, 2010).

Multicultural education is credited for initiating the dialogue about the influence of culture in educational settings. As such, an offspring of multicultural education is culturally relevant teaching, which is defined by Gay (2002, p.106) as "using the cultural characteristics, experiences and perspectives of ethnically diverse students as conduits for teaching them more effectively". Rychly & Graves (2012) suggest that culturally relevant teaching can be viewed as instructional strategies that attend to cultural characteristics that contribute to differences between students and teachers. Ladson-Billings (1995b, 2006), who coined the term culturally relevant teaching, asserts that culturally relevant teaching is achieved when three criteria/characteristics are achieved: (1) an ability to develop students academically, (2) willingness to nurture and support cultural competence, and (3) the development of socio-political consciousness. Some of the elements of culturally relevant teaching are developing a knowledge base about cultural diversity, including ethnic and cultural diversity content in the curriculum, communicating with ethnically diverse students, responding to ethnic diversity in the delivery of instruction, and being reflective (Rychly & Graves, 2012; Maasum et al., 2013). Gay (2000) suggests that when academic knowledge and skills are couched within the lived experiences of students, they are more meaningful and therefore students express interest in the topic and the material is learned more easily and thoroughly.

Although awareness of cultural diversity is important, it can sometimes dilute the concept of culturally relevant teaching. Culturally relevant teaching is more than a mere awareness of, respect for, and general recognition of the fact that ethnic groups have different values or express similar values in various ways (Maasum et al., 2013). When

implementing culturally relevant strategies, teachers should promote cultural understanding, with the hope and expectation that their students become sensitive to other students' cultures, and eventually be able to live in unison within a multicultural community (Nunan, 1999).

The necessity to include multicultural and culturally centered content in teacher training programs has been documented in the literature (Maasum et al., 2013; Ambe, 2006; Finley, 2000; Hickling-Hudson & McMeniman, 1993; Swetnam, 2003; Akiba, 2010). While there have been attempts to address diversity in teacher education programs, Marx (2004) asserts that content in teacher education programs does not adequately prepare teachers to meet the needs of diverse students. Because of this, Wiedeman (2002) and Murrell (2001) add that one of the primary assumptions that drive the national agenda and teacher education program's position on improving the quality of teaching and the deficits in their curricula is that ongoing professional development occupies an important role in the preparation of effective educators.

Statement of the Problem

Although culturally relevant pedagogical approaches are popular in teacher education programs, promoted in teacher education literature, and more specifically, expounded upon in professional development opportunities, there is little consensus about how culturally relevant pedagogy is implemented in classrooms (Young, 2010), due to its theoretical conceptualization (Ladson-Billings, 1995a, 2006). Gay (2010) eloquently explains this dilemma.

> Just as you would not presume to believe that you can define reading, math, or science for yourselves, you cannot do likewise for multicultural education; disciplinary scholarship exists which does so. Furthermore, total symmetry of expressive styles and language usage among scholars is not necessary for a consensus of ideas and meanings to exist. Scholars can agree on essential components and attributes of race, ethnicity, culture, and multicultural education without having to speak in a single voice. It is unreasonable to expect anything else of scholars in any area of study, and especially of scholars devoted to promoting cultural diversity (p. 146).

Gay's comment about defining multicultural education speaks to the difficulty of teaching pre-service and in-service teachers how to implement culturally relevant teaching. Because these notions are theoretical and not prescriptive, teachers find it difficult to transform their practice.

Students' Six is a professional development program that aims to help in-service teachers align their instructional strategies with culturally relevant teaching by engaging in reflection, and conversations with traditionally marginalized students about the students' experiences with the intersections of culture, race, and education. Students' Six is presented as six distinct concepts that are grounded in culturally relevant teaching. Each concept and accompanying explanation is presented in Table 1.

Table 1. Students' Six Concepts and Definitions

Students' Six Concept	Definition
Visibility	Making every student feel acknowledged and included in the classroom
Proximity	Using physical space to engage students and reduce perceived threat
Connecting to Students' Lives	Making linkages between classroom content and student experiences and perspectives
Engaging Students' Culture	Incorporating positive elements of student's culture into classroom learning and community building
Addressing Race	Talking openly about racial dynamics and how they impact student experience
Connecting to the Larger World	Helping students identify their future paths and using classroom experiences to guide students toward their personal goals

Although the concepts of Students' Six are grounded in culturally relevant teaching, there is not evidence to suggest that the six concepts are mutually exclusive. Moreover, when these concepts are discussed in professional development sessions, there are instructional strategies that overlap concepts. For instance, an example of Visibility may also be an example of Proximity. The overlap of strategies may be problematic for two reasons. First, if teachers were to be assessed on their implementation of culturally relevant teaching, as defined by Students' Six, the validity of the inferences made from that assessment could be threatened if some strategies align with more than one concept. The feedback received on the implementation of instructional strategies that align with more than one concept should not be linked to a facet of culturally relevant teaching, but

to that particular instructional strategy alone. Secondly, if instructional strategies align with more than one concept, professional development sessions that seemingly help teachers understand these theoretical stances add to the documented confusion around the implementation and understanding of culturally relevant teaching.

Purpose of the Study

This study aims to address a cyclical dilemma associated with measurement and culturally relevant pedagogy: (1) there is no empirical evidence to support the development of an instrument with distinct categories associated with culturally relevant pedagogy; (2) there is little consensus in the literature about how culturally relevant pedagogy should be defined; but (3) there is a growing demand for an instrument to assess the implementation of culturally relevant pedagogy. This study addresses each phase of the cycle by: (1) providing empirical evidence to support the development of an instrument; (2) demonstrating how consensus can be achieved about how culturally relevant pedagogy can be defined and implemented; and (3) using results of empirically sound methods to develop an instrument to assess culturally relevant pedagogy.

In addressing the cyclical nature of the issues surrounding measurement and culturally relevant pedagogy, this study provides an empirical investigation of the concepts underlying culturally-centered instructional approaches, as it is defined by Students' Six. Students' Six is an ideal context for this study because it is based upon minority, student experiences with instruction. Further, Students' Six incorporates a "flipped classroom" approach, in which students are given the opportunity to teach instructors. In doing so, students are empowered and their experiences are validated,

while teachers have the opportunity to reflect on their pedagogical practice (reflection and students' experience are facets of culturally relevant teaching). Lastly, the Students' Six model is currently based upon six "distinct" student identified concepts accompanied with instructional strategies, which serves as a starting point for investigating how culturally relevant pedagogy can be defined and implemented. The following figure further illustrates the cyclical problem surrounding measurement and culturally relevant pedagogy, within the context of Students' Six.

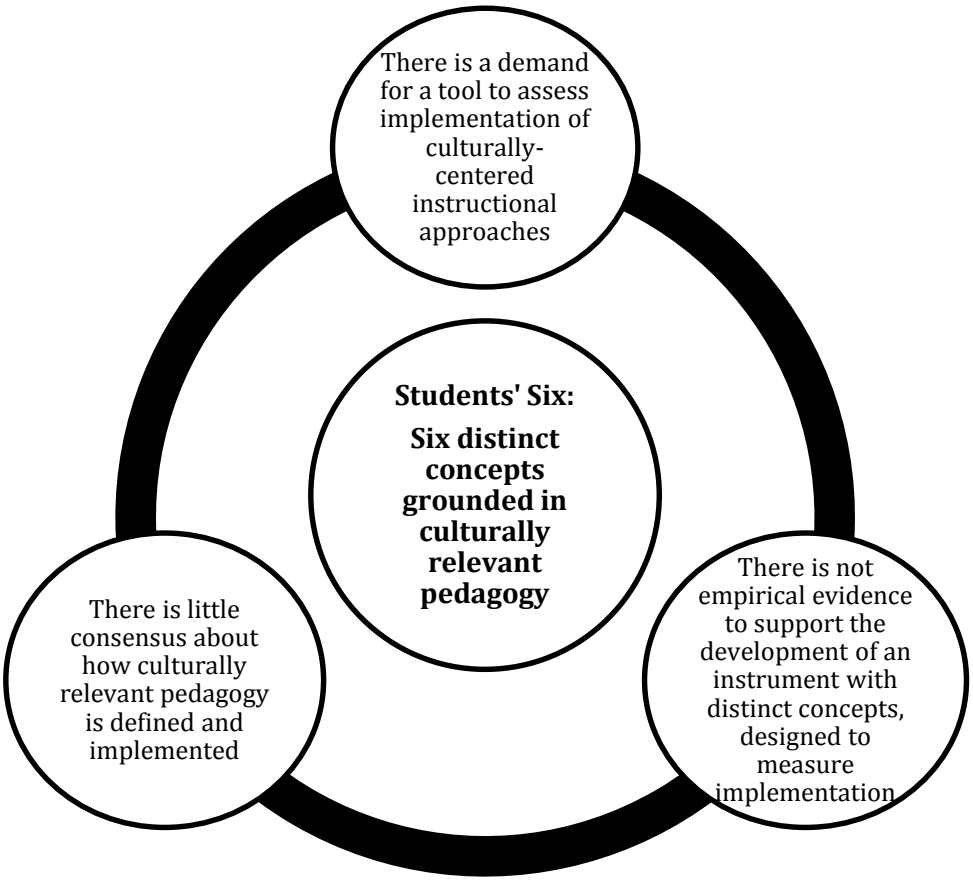


Figure 1. Cyclicality of the Problem

Students' Six is a program that aims to educate teachers about culturally relevant pedagogy through in-depth conversations about six, student identified, concepts (visibility, proximity, connecting to students' lives, engaging students' culture, addressing race, and connecting to the larger world) that are strongly associated with culturally relevant pedagogy and multicultural education. To this end, the primary goals of this study are: (1) to provide statistical evidence to support the distinctiveness of the six concepts; and (2) to explore the usefulness of Assessment Engineering for developing a rubric that will assess the degree to which Students' Six participants are implementing culturally relevant pedagogy, as defined by Students' Six.

From a broader perspective, the results of this study will add to the literature about methods for implementing programs that endorse culturally relevant pedagogy, developing consensus about underlying themes of theoretically based concepts, and how culturally relevant pedagogy can potentially be defined and assessed. More specifically, the results of this study will strengthen the validity argument for Students' Six by providing evidence for, or against the number of distinct concepts that are taught and advertised by the program.

Results will also provide statistical evidence to support the grouping of strategies that are encouraged during Students' Six professional development sessions. This impact will be especially useful because Students' Six is divided into six sessions, and specific strategies that are thought to align with each concept are discussed as practical examples that teachers could implement in their classes. However, experience has shown that

multiple strategies appear throughout different sessions. These results can then be used as formative feedback to build upon the delivery, advertisement, and replication of Students' Six.

Research Questions

The research questions, explanations, and data that guide the methods of this dissertation are below. Ultimately, concept mapping will inform each research question, but specific aspects of the process will address each question in different ways.

Research Question #1: What are the specific instructional strategies associated with culturally relevant pedagogy, per Students' Six participants? In what ways do these instructional strategies overlap?

The purpose of this research question is to identify instructional strategies associated with culturally relevant pedagogy, per Students' Six participants. The process of identifying specific strategies associated with culturally relevant pedagogy will provide documentation of what implementation of the Students' Six framework looks like in practice, and data to support inferences about scores obtained during the assessment of Students' Six participants' implementation of the framework.

Statements generated from focus prompts (Appendix B) will serve as data for this research question. After each of the six professional development sessions, participants were asked to list examples of specific strategies that exemplify the concept discussed. The lists were compiled, and compared across sessions to identify overlaps of strategies. Ultimately, the final list, without duplicates, are used to outline how culturally relevant teaching can be defined, and used for the concept mapping analysis.

Research Question #2: How do Students' Six participants collectively categorize instructional strategies that are indicative of culturally relevant pedagogy, per Students' Six Framework?

The second research question addresses how specific instructional strategies (see research question #1) associated with culturally relevant pedagogy are categorized. The purpose of categorizing strategies associated with culturally relevant pedagogy is threefold: (1) to provide formative feedback about the structure of the Students' Six Framework; (2) to provide support for the validity argument for the interpretation of scores that will be developed during observations of teachers who have successfully completed the Students' Six Professional Development Series; and (3) contribute to the literature about how culturally relevant pedagogy can be defined.

Currently, the Students' Six framework consists of six distinct concepts: Visibility, Proximity, Connection to Students' Lives, Engaging Students' Culture, Addressing Race, and Connection to Future Selves. The categorization of the specific strategies associated with the Students' Six framework will ultimately provide evidence for, or against, the number of distinct concepts underlying culturally relevant pedagogy as defined by Students' Six participants. This research question provides data to support the structure of the Students' Six Framework, by strengthening the validity argument.

Concept mapping (cluster analysis process) is used to provide data to address this research question. Concept mapping is a mixed methods technique that quantifies qualitative data, and produces clusters of similar ideas (instructional strategies in this context). The results (clusters) of the concept mapping analysis provide insight into the

distinctiveness of the six concepts described by Students' Six, and how specific strategies (see research question #1) are similar or different, as it relates to the resulting clusters.

Research Question #3: How can assessment engineering be used to develop a rubric that assesses the implementation and effectiveness of culturally relevant pedagogy, per Students' Six participants' categorization of instructional strategies that are indicative of culturally relevant pedagogy?

The primary purpose of this research question is to provide Students' Six administrators with a template for rubric development, using the results of the concept mapping process. One of the most frequent requests from Students' Six participants and school administrators is a rubric to assess Students' Six participants' level of implementation of their framework. Assessment Engineering is a potential framework that could be used for rubric development, as the initial steps of the Assessment Engineering process are construct identification, and task modeling along a continuum. The results of the concept mapping process will provide descriptive data that will be repurposed for construct identification, and used to develop a tentative rubric.

Definition of Key Terms

Culture, social justice, instructional strategies, color blindness, and objectivity are terms that will be used throughout the course of this document, but aren't operationally defined. Table 2 provides definitions for these terms.

Table 2. Key Terms and Definitions

Terms	Definition
Culture	"Values, symbols, interpretations, and perspectives in which distinguish one people from another in modernized societies, not artifacts, material objects, and other tangible aspects of human societies" (Banks, 2014, p. 80)
Social justice	Impartial distribution of educational opportunities which lead to advantages received by groups of people (Miller, 1999)
Instructional strategies	Approaches used to convey information in an academic setting (Fox, 2014)
Color blindness	Principle of Critical Race Theory that asserts that some individuals purport not to see race and culture, while perpetuating racism (Taylor, Gillborn, & Ladson-Billings, 2009)
Objectivity	A stance in which there is not bias or position (Zamudio, Russell, Rios, & Bridgeman, 2011)

CHAPTER II

LITERATURE REVIEW

In the first chapter I positioned this study in the context of demographic shifts in the United States. I first introduced the significance of culture as it relates to education and educational outcomes, and then described prominent pedagogical approaches that are centered on educating diverse students. This chapter provides a more in-depth discussion of the rationale and significance of this study. First, the history of teacher education curricula and instructional strategies as it relates to educating diverse students will be presented. Then, a discussion of the current gaps in the preparation of teachers for multicultural classrooms transitions the conversation into theoretical approaches for educating diverse students, namely multicultural education, critical race theory, and culturally relevant pedagogy.

Upon discussing theoretical approaches for educating diverse students, one of the primary weaknesses of theoretical paradigms surfaces: implementation. The confusion around implementing culturally relevant instructional strategies then becomes the premise for ongoing professional development. A program description of the Students' Six professional development series, whose goal is to educate in-service teachers about implementing culturally relevant instructional strategies, is then provided. Next, a discussion of validity frames the significance of the current empirical investigation as it relates to assessment, construct identification, and score inferences. Then, the following

sections provide an overview of the methods that are used to investigate the conceptual framework for culturally relevant teaching, per Students' Six. Lastly, assessment engineering, which is used as a framework for developing a rubric to assess the implementation of culturally relevant teaching strategies, as defined by Students' Six, will be presented.

Teacher Education Curricula

The initial call to seriously consider the importance of diversity in the preparation of teachers commenced with The American Association of Colleges of Teacher Education's (AACTE) 1973 policy statement, *No One Model American (*Lopez, 1979), which informally charged teacher education programs with the responsibility of incorporating "pluralism" into teacher preparation curricula (Wiedeman, 2002). AACTE's policy statement prompted a mandate by The National Council for Accreditation of Teacher Education (NCATE), now the Council for the Accreditation of Educator Preparation (CAEP), stating that each teacher training program shall provide "evidence of planning for multicultural education in its teacher education curricula including both the general and professional studies components" (NCATE, 1977, p.4), and the development of teacher preparation standards which included a focus on: curriculum, instruction, and field experiences (Wiedeman, 2002). While the attention toward diversity by AACTE and NCATE were promising landmarks, the work of preparing teachers for diverse students has been slow (Wiedeman, 2002; Nieto, 2000; Cochran-Smith, 2001; Goodlad, 1990; Ladson-Billings, 1999; Sleeter, 2001, King & Butler, 2015).

Nearly all U.S. states include diversity requirements for teacher certification, but implementation is not monitored (Akiba, Cockrell, Simmons, Han, & Agarwal, 2010). Teacher education programs recognize the need for culturally relevant teachers (Castro, 2010; King & Butler, 2015); however, the content varies significantly between academic programs (King & Butler, 2015). The typical response by teacher education programs to diversity mandates has been to add a course or two on multicultural education, bilingual education, or urban education, while leaving the original curriculum mostly untouched (Goodwin, 1997; Sleeter 2001).

Although this approach to infusing diversity into the curriculum highlights an appreciation of differences, it is not sufficient (Nieto & Bode, 2012) for the following reasons: (1) Typically, added courses are electives; therefore, it is plausible that students complete their teacher education programs without confronting issues of diversity; (2) Ideas associated with diversity are rarely reinforced and expanded upon in other courses, therefore prospective teachers may not embrace them as their own, (3) If the new ways of thinking that are introduced and received by student teachers in added courses are contradicted by traditional courses that were untouched in the original curriculum, positive effects of the added courses may be replaced by outdated views about teaching (Villegas, A. & Lucas, T., 2002); and, (4) Pre-service teachers tend to adopt a color blind perspective (contend that one doesn't see color and therefore treats everyone the same) and therefore their openness to discussing the importance of diversity and culturally relevant approaches is hindered (Durdent & Truscott, 2013).

Other strategies endorsed by pre-service teacher education programs are to include field experiences with multicultural education coursework, diversify teacher candidate selection pools (Sleeter, 2001; Achinstein, B., et al., 2010; Torres, J. et al., 2010; Chung & Harrsion, 2015), use alternative selection criteria (Haberman, 1993; 1995; 1996; Chung & Harrison, 2015), and include community-based cross-cultural immersion experiences, where teacher education students live in communities that are culturally different from their own (Merryfield, 2000; Sleeter, 2001). Although these approaches are legitimate attempts to acknowledge and address issues related to diversity, they have mixed results regarding their effectiveness, or are difficult to replicate on large scales (Chung & Harrison, 2015). The common disadvantage with all of the aforementioned strategies to prepare teachers for diverse classrooms is that they do not directly acknowledge inequalities based on differences, or support an analysis of hierarchical and systemic structures that perpetuate domination and subordination of particular groups of people (Giroux & McLaren, 1986; Macedo & Bartolome´, 1999; Nieto, 2000; Bowman, 2010).

The role of teacher preparation programs in training teachers to engage in social justice and equity-based work has been weak because the acknowledgment of diversity, inequalities, or systems that promote injustice have been relegated to an isolated course, instead of being infused into teacher education programs as a stance (Cochran-Smith, 2001; Goodlad, 1990; Ladson-Billings, 1999, 2006). While it is arguable that teachers can be successful, effective educators of students who are different from them culturally, it is also arguable that few teachers instinctively know how to effectively teach all the

children in their classrooms, due to cultural differences (Paley, 1979). For this reason, there are schools of thought that suggest that culture should be at the forefront of teacher education programs, and the lens of which all teachers view their practice.

Multicultural Education

Multicultural education is a philosophy that emerged out of feminism and the civil rights movement (Banks and Banks, 2001). Over the years, multicultural education has gained considerable attention in teacher education arenas as a result of its endorsement by the American Association of Colleges for Teacher Education (AACTE) and the Association for Supervision and Curriculum Development (ASCD), as a belief that schools should implement instructional programs that preserve cultural pluralism (Gay, 1995). Multicultural education asserts that culture influences behavior, including teaching and learning, and that some cultures are valued more in schools and therefore contribute to educational disparities (Banks, 2010, 2014).

The primary goal of multicultural education is to reform educational institutions so that students, regardless of their gender, and/or racial, ethnic, and social backgrounds, experience educational equality (Banks, 1993, 2014). Multicultural education is a philosophical viewpoint and value orientation that guides decision making that better serves the educational needs of students from diverse populations (Garcia, 1982; Grant, 1978; Frazier, 1977; Banks, 2014). Gay (1995) contends that multicultural education is a "set of beliefs that recognizes and values the importance of ethnic and cultural diversity in shaping lifestyles, social experiences, personal identities and educational opportunities of individuals, groups, and nations" (p.28). Multicultural education has also been defined

as a field of inquiry that recognizes the social structure of the U.S., value beliefs, and power systems by contributing to social and political struggles, while also prescribing how to ensure equity (Banks, 1993; Sleeter, 1996; Banks, 1992; Nieto, 1992; Banks, 2014).

Banks (1993, 2014) provide five dimensions of multicultural education: content integration, knowledge construction processes, prejudice reduction, equity pedagogy, and empowering school culture and social construction. Content integration involves the extent to which teachers use examples, and information from a variety of cultures to discuss key concepts. Knowledge construction processes deal with procedures by which scientists create knowledge, and the ways in which implicit cultural assumptions, and references within a discipline influences knowledge. Prejudice reduction deals with the racial attitudes of students and strategies that can be used to develop more democratic attitudes towards race. Equity pedagogy is the extents to which teachers use techniques that facilitate the academic achievement of students from diverse backgrounds. Finally, empowering school culture and social structure is associated with processes used to restructure the culture of schools, as an organization, so that students from diverse backgrounds experience educational equality.

Banks and Banks (2001) and Banks (2014), assert that multicultural education can be used to describe a plethora of programs and/or practices related to educational equity, ethnic groups, low-income groups, and groups with disabilities, to name a few. These programs/practices can span from curricular diversity to whole school reform. Given this

view of the application of multicultural education, there have been some misconceptions about its philosophy.

There are a variety of misconceptions about multicultural education, but the primary misconception about multicultural education is that it's simply curriculum reform (Banks, 1993). Many practitioners assume that restructuring the curriculum to include content about diverse ethnic groups, women, and other cultures is the totality of multicultural education. Further, Ladson-Billings and Tate (1995) state that "the current multicultural education practice seems more appropriately rooted in the intergroup education movement of the 1950s, which was designed to help African Americans and other 'unmeltable' ethnics become a part of America's melting pot'' (p. 61) and thus, ignoring race and power relations, therefore, perpetuating color blindness (Nieto, 2000; Rios & Montecinos, 1999; Sleeter, 2001).

Critical Race Theory

Critical Race Theory (CRT) is a theoretical approach for understanding, and changing inequality by positioning race as the key factor in analyzing disparities. CRT emerged out of Critical Legal Studies (CLS) and radical feminism, as an effort to combat the subtle forms of racism witnessed during the 1970's (Delgado, 2001; Decuir & Dixson, 2004), after a stalling of the traditional civil rights movement (Taylor, Gillborn, & Ladson-Billings, 2009). CRT challenges the notions of objectivity and colorblindness, and asserts that neutralist views assist in the permeation of racism by disregarding structural inequalities (Taylor, Gillborn, & Ladson-Billings, 2009).

According to Delgado and Stefancic (1993), the work of CRT scholars are typically categorized under one of the following categories presented in Table 3: (1) a critique of liberalism, (2) storytelling, (3) revisionist interpretation American civil rights law, (4) explorations of the underpinning of race and racism, (5) structural determinism, (6) interactions between race, sex and class, (7) essentialism and anti-essentialism, or (8) cultural naturalism.

Table 3. Themes of CRT

Theme of CRT	Explanation
Critique of liberalism	Most CRT scholars do not advocate for liberalism as an approach for racial disparities; they favor more aggressive, race conscious approaches that focus on political organization. For example, liberalists view the civil rights movement as a long slow, upward battle whereas CRT scholars argue the limits of the law for a catalytic change (Crenshaw,1988).
[Counter]Storytelling and naming one's own reality	Many critical race theorists argue that the primary barrier to racial reform is the majoritarian mindset. To counter the majoritarian mindset many CRT scholars employ storytelling as valid evidence for the experiences of marginalized people. Ladson-Billings (1998) adds that the primary reason stories are important is that they add necessary context to otherwise objective notions of race and racism.
Revisionist interpretations of American civil rights law and progress	CRT emerged out of CLS and the stalling of the Civil Rights Movement. A recurring topic of concern is why antidiscrimination laws have been ineffective, or at most cyclical in nature, with periods of progress followed by regress. Bell argues that the progression of civil rights for Blacks was a result of the interests of Whites (interest convergence) and that stance is supported by Dudziak's (1993) work shows that civil rights laws were passed to enhance the image of the US.

Underpinnings of race and racism	Many writers use social science to better understand how different settings encourage or discourage discrimination.
Structural determinism	A number of researchers investigate how culture influences content, and therefore determine social outcomes.
Intersections of race, sex, and class	Some scholars investigate intersections of race, sex, and class and how experiences vary by subgroup. For example, race and class are separate disadvantaging factors; therefore, the interests of Black women are not necessarily addressed in traditional women's movements.
Essentialism and anti-essentialism	Theorists who study this issue question the unit of analysis-what is the Black community, one or several? Are middle and working class African Americans comparable? Do all oppressed people have something in common?
Cultural nationalism/separatism	A more recent strain of CRT explores how people of color can best promote themselves by separation from the mainstream culture.

Simply stated, CRT studies the relationship between race, racism, and power as it relates to disparities experienced by marginalized groups of people by questioning the foundations of liberal order including, legal reasoning, and neutral principles of constitutional law (Delgado and Stefancic, 2001). CRT has expanded since its legal origin to the field of education, and is used to investigate racial disparities in school discipline, tracking, and curriculum content, to name a few. Although CRT theorists employ a variety of concepts in their scholarship, it is generally agreed that CRT is comprised of the following tenets: (1) racism is ordinary; (2) interest convergence; (3)

race is socially constructed; (4) intersectionality; (5) voice of color; and (6) meritocracy (Zamudio, Russell, Rios, & Bridgeman, 2011; Delgado and Stefancic, 2001).

Racism is ordinary. Racism is deeply woven into our society to the extent of omnipresence. For this reason, racism is difficult to address (Delgado and Stefancic, 2001; Zamudio et al., 2011). White supremacy is the criteria in which all other systems are defined (Gillborn and Ladson-Billings, 2009); hence, its inability to be recognized by any race of people, including Whites. A related idea is Whiteness as property. Whiteness as property is a norm within the social structure of society that affords Whites particular privileges on the basis of their race (Decuir & Dixson, 2004). Harris (1993) argues that Whiteness as property grants Whites four primary rights: 1) disposition, 2) use and enjoyment 3) reputation and status property, and 4) the absolute right to exclude. Because of the rights associated with the property of Whiteness, efforts toward justice in any realm of society has been warped.

Interest convergence. Sometimes referred to as material determinism, interest convergence is the alignment of minority interests with the interests of Whites. This tenet asserts that the interests of marginalized groups are only accommodated when they converge with the interests of Whites (Gillborn and Ladson-Billings, 2009). For example, the state of Arizona originally deemed the Martin Luther King Holiday too expensive, and decided not to recognize it for state workers and agencies. After a number of boycotts, including professional and social functions such as NBA and NFL events, the decision was reversed. Interests (revenue for the state, and recognition of an iconic figure in minority cultures) converged (Ladson-Billings, 1998).

Voice of color. The majority's account of history typically excludes the minority perspective. The omission of minority experiences contributes to the oppression of historically marginalized groups. CRT encourages a rewriting of history to include the lived experiences of people of color. This recount of history is typically done by a narrative method called [counter] storytelling wherein beliefs, values and norms associated with dominant groups (dominant narrative) is challenged by the telling of lived experiences of marginalized groups. This [counter] storytelling thereby provides insight into and counter the dominant, deficit perspective that is generally perpetuated.

Meritocracy and Intersectionality. Meritocracy is the belief that inequality is more related to individual choices rather than discrimination. This belief continues to support the racial hierarchy that places Whites at the top and people of color at the bottom (Delgado and Stefancic, 2001), because this notion does not question systems that produce hierarchies, it promotes a deficit perspective based on merit. A related tenet of CRT is intersectionality. Intersectionality is the possession of more than one historically oppressed identity. For example, a Black lesbian has a more complex social standing than a person characterized as Black or lesbian, and generally these socially complex standings are related to meritocratic beliefs based on discrimination of one of the historically oppressed identities.

Critical Race Theory and Education

Ladson-Billings (1998) explains the relationship between CRT and education as it relates to curriculum, instruction, assessment, school funding, and desegregation. Ladson-Billings asserts that CRT positions school curricula as a culturally specific White master

script. Master scripting is defined by Swartz (1992) as an approach for silencing multiple voices and perspectives by legitimizing the majority's perspective, while disempowering alternative perspective through misrepresentation. An example of this master scripting is the representation of Rosa Parks. In school curricula, Rosa Parks is traditionally reduced to a tired woman who refused to give up her seat, instead of a committed participant in the social justice movement. Similarly, Martin Luther King, Jr. is portrayed as a hero who enjoyed the support of all Americans, rather than a scholar and activist whose work extended worldwide (Ladson-Billings, 1998).

CRT suggests that many instructional strategies view minority students as deficient, even in the language used to discuss classroom related issues. Banks (2014) discusses the cultural deprivation paradigm in which educators view the culture of students as the problem, instead of the culture of the school. Ladson-Billings (1998) adds to the conversation of deficit paradigms by providing examples of common proxies such as "at-risk" (proxy for African American) and "the right strategy to deal with" (proxy for control). Further, Ladson-Billings (2007) argues that the most popular phrase used to discuss educational trends, namely the achievement gap, is grounded in a deficit-based logic. Achievement gap implies that certain groups are okay, while other groups need to catch up as if learning is static (the groups who are ahead will stop and wait for others to catch up), and this terminology suggests that the "achievement gap" represents issues resulting solely from student achievement, which ignores school funding, health, and wealth gaps that are related to achievement.

Ladson-Billings (1998) continues discussing instructional deficits as it relates to race-neutral perspectives. Race-neutral perspectives view deficiencies as individual phenomena, hence the belief that instruction should be generic and work for all students, until it doesn't work for all students, and the blame is placed on the students rather than the teaching strategies used to teach students. Ladson-Billings (2007) provides and addresses several myths that have circulated as a result of generic teaching strategies such as: minority parents don't care, children don't have enough exposure, children are not ready, families don't value education, and culture of poverty.

Recently, Pollack (2014) discussed how everyday "teacher talk" (informal conversational narratives) in the form of deficit perspectives perpetuated educational inequities. According to Pollack (2009), these seemingly innocent conversations reinforce differential behavior toward students of color, contribute to a school culture of low expectations for students of color; and contribute to a lessened sense of agency among teachers, because these conversations ultimately convey and strengthen beliefs that differences in academic performance are due to culture, cultural deficiencies, or class. An example of deficit based teacher talk is: "Teachers can teach well and care deeply about their students, but they cannot 'fix' kids, families, and communities." Or, when some Mexican immigrant families take extended trips teachers discuss how "families cannot really afford such trips and that their time, effort, and money would be better spent helping their children learn English…'Don't they get that their kids are already way behind? And then they wonder why their kids are failing.'" Statements such as these not only insinuate that students' culture is associated with their academic

performance, but also that parents do not value education. As a result, teachers become unengaged with things that are within their control such as expectations and instructional approaches that will be more aligned with students' cultures. Fortunately, there has been research and literature about the educational needs of diverse students as it relates to instruction, and it has been coined culturally relevant pedagogy.

Culturally Relevant Pedagogy

Ladson-Billings (1992, 2014) defines culturally relevant pedagogy as a theoretical approach that is committed to the collective empowerment of all students. Culturally relevant pedagogy is not only concerned with academic achievement, but social and cultural success as well. One of the major aspects of this teaching approach is the critical examination of socio-political systems. As a result of culturally relevant pedagogy, students are taught and encouraged to critically examine current processes, and its role in the development of a democratic and multicultural society.

Culturally relevant pedagogy is based on three criteria: (1) students must experience academic success; (2) students must develop/maintain cultural competence; and (3) students must develop critical consciousness through which they challenge the status quo of the current social order. Regardless of social inequities and learning style, all students need to excel, or at least be academically competent. Culturally relevant teachers demand, reinforce, and produce academic excellence in their students by encouraging students to *choose* (emphasis in Ladson-Billings, 1995a; Adkins, 2012) academic excellence. Milner (2011) expands on the requirements for culturally relevant teaching by noting that teachers must build meaningful sustaining relationships,

recognize their own and their students' multiple and varied identities (perceptions and realities), and confront matters of race. For example, a culturally relevant teacher may encourage students to choose academic success by drawing on issues and ideas students find meaningful; in doing so, students' skills and abilities are valued and channeled in academically appropriate ways, resulting in supportive versus antagonistic teacher-student relationship. (Ladson-Billings, 1995a)

Culturally relevant teaching requires students to maintain cultural integrity by utilizing their culture as a mode for learning (Milner, 2011). For example, a culturally relevant teacher may choose to allow students to use song lyrics that students' are familiar with to teach students about the difference between literal and figurative meanings. Or, allowing students to use their home language while learning Standard (academic) English, in which learning takes place during the translation process. In doing so, students' culture is valued, instead of being recognized as wrong, inappropriate, or unacceptable. (Ladson-Billings, 1995a, 2014)

Finally, students must develop a social consciousness, which allows them to critique cultural norms, values, and institutions that maintain social inequities. For example, a culturally relevant teacher may ask students to critique the information presented to them, or the inequitable system that allows more affluent school systems access to better resources. The primary outcome of social consciousness is centered students who are exposed to a variety of perspectives as it relates to sociality. (Ladson-Billings, 1995a, 2014)

Ladson-Billings (1995b, 2014) further defined culturally relevant pedagogy as a "theoretical model that not only addresses student achievement but also helps students to accept and affirm their cultural identity while developing critical perspectives that challenge inequities that schools perpetuate" (Ladson-Billings, 1995b, p. 469). While developing this working definition of culturally relevant pedagogy, Ladson-Billings (1995b) found that teachers exhibited academic success, cultural competence, and social consciousness in different ways; therefore, she provided three theoretical underpinnings (self and others, social relations, and conceptions of knowledge) that broadly categorize teaching behaviors that align with culturally relevant pedagogy. Table 4 shows how the theoretical underpinning of culturally relevant pedagogy (Ladson-Billings, 1995b, 2014) compares to how teachers perceive culturally relevant pedagogy, per a study that was conducted by Young (2010).

Table 4. Theory vs. Practice of Culturally Relevant Pedagogy

Ladson-Billing (1995b)	Young (2010)
Concept of self and others	
• Believe that all students are capable of academic success • View pedagogy as art-unpredictable • View themselves as members of a community • View teaching as a way to give back to the community • Believe in the notion of "teaching as mining" or pulling knowledge out	• Be ready to learn from students • Be flexible to adapt to the needs of students • Be inclusive of all students' experiential knowledge • Know your students • Attend to the voices and stories of your students • Instill and create a community of belief in students' success
Social Relation	
• Maintain fluid student-teacher relationships • Demonstrate connectedness with all students • Develop a community of learners • Encourage students to learn collaboratively and be responsible for each other	• Encourage students sharing knowledge with others • Tie curriculum to family connections • Encourage higher level thinking skills • Set high expectations for all students • Bring in outside resources
Concept of Knowledge	
• Knowledge is not static, it is shared, recycled, and constructed • Knowledge must be viewed critically • Teachers must be passionate about knowledge and learning • Teachers must scaffold, or build bridges, to facilitate learning	• Acknowledge that there are multiple ways to acquire and demonstrate knowledge • Be mindful to apply curriculum to real life circumstances • Be critical of knowledge and social inequality • Teach students to be metacognitive

• Assessment must be multifaceted, incorporating multiple forms of excellence	• Be continuously learning and challenging knowledge

As Table 4 exemplifies, defining culturally relevant pedagogy and evaluating the extent to which an instructor is implementing culturally relevant pedagogy can be difficult because it takes on many forms. Endorsing culturally relevant pedagogy is more than a series of checklists, instructional techniques and modifying instruction to incorporate stereotypical customs of specific cultural groups (Villegas et al., 2002). Villegas et al. (2002) suggest that teachers who endorse culturally relevant pedagogy have similar beliefs. They have a high degree of sociocultural consciousness, hold affirming views on student backgrounds, see themselves as agents of change, and embrace constructivist views of learning and teaching. Relatedly, Adkins (2012) found that teachers who endorse culturally centered instructional strategies believed their students were brilliant, overcoming academic challenges increased self efficacy and confidence, are warm but demanding, and viewed their primary role as one that provides unlimited support for students to meet academic demands.

Recently Ladson-Billings (2014) built on the work of Paris (2012) and "remixed" the theory of culturally relevant pedagogy, due to it's static nature (superficial conceptions of culture) which has resulted in a loss of the acknowledgement of variability within cultures, and the socio-political aspect of culturally relevant pedagogy. The "remixed" version of culturally relevant pedagogy is culturally sustaining pedagogy (CSP). The primary goal of CSP is to link the challenges of social justice to the

sustaining of linguistic, literate, and cultural pluralism. Building on the original notion of culturally relevant pedagogy and more recently CSP, educators continually struggle with how to implement these instructional strategies and question what culturally relevant pedagogy looks like in practice (Ladson-Billings, 2011). Students' Six was developed as an approach for honing in on specific concepts and strategies related to culturally relevant pedagogy while maintaining the centrality of traditionally marginalized students.

Program Description

Students' Six is a series of six student led workshops that are designed to educate in-service teachers about concepts and strategies related to culturally relevant pedagogy (detailed information is provided in the Appendix). The primary purpose of Students' Six is to support the learning of students of color by helping educators understand and implement culturally proficient teaching strategies (Bunner, 2013). The Students' Six framework was developed by thirty high school students of color, who identified which of John Hattie's (2009) research-based strategies for culturally relevant teaching resonated with them the most. The result of the initial activity were six concepts that participating students, as a group, felt had the most influence on their academic success and would like teachers to implement in their classrooms.

The six concepts that participating students selected were renamed and defined as Visibility (making every student feel acknowledged and included in the classroom), Proximity (using physical space to engage students and reduce perceived threat), Connecting to Students' Lives (making linkages between classroom content and student experiences and perspectives), Engaging Students' Culture (incorporating positive

elements of student's culture into classroom learning and community building), Addressing Race (talking openly about racial dynamics and how they impact student experience), and Connecting to the Larger World (helping students identify their future paths and using classroom experiences to guide students toward their personal goals).

Each of the six concepts is discussed during a two-hour professional development session, totaling six sessions, and 12 hours of training on the six aforementioned concepts associated with culturally relevant pedagogy. Because the training is an integral part of the district's equity framework, and financially supported by Chapel Hill Carrboro County Schools (CHCCS), participants receive 12 continuing education units (CEUs) after the successful completion of Students' Six.

The design of the Students' Six professional development series is based on well documented tenets of effective professional development: (1) ongoing and connected to practice, (2) aligned with school or district priorities or goals and (3) contain a mentoring or coaching component (Darling-Hammond, Wei, Andree, Richardson & Orphanos, 2009; Garet, Porter, Desimone, Birman & Yoon, 2001). In addition to including the tenets of effective professional development, Students' Six includes minority students as leaders, and experts in culturally relevant pedagogy.

Each professional development session begins with an icebreaker, followed by an opportunity to read a research article related to the concept being discussed. After participants are given an opportunity to read the article, student facilitators engage in conversation with participants in small groups about the article, and how they (students) perceive the topic as it relates to their experiences as minority students. At the end of

each session, individual groups reconvene and discuss what they learned during their conversation with minority, student leaders, and how they plan to implement new strategies into their classrooms based upon student experiences.

Due to the positive attention and feedback that Students' Six has received, program participants and school administrators have requested formal feedback on participant's implementation of Students' Six strategies. Providing formal feedback on teaching strategies requires classroom observations, and documentation in the form of a rubric. But, before developing a rubric proclaiming to measure six distinct concepts and associated strategies, there is a need to investigate the validity argument of the Students' Six theoretical framework (six distinct concepts with associated strategies).

If validity is not considered before assessing Students' Six participants' level of implementation, there is a possibility that the inferences made from teacher observations may not be empirically sound or supported. Thus, it is imperative that the development of a rubric designed to assess the extent to which teachers are implementing culturally relevant teaching strategies, as defined by Student's Six, is designed with considerations of validity, in which the construct being measured (culturally relevant teaching) is clearly defined. For the purposes of this study, defining culturally relevant teaching is statistically determining the number of concepts underlying culturally relevant teaching, as defined by Students' Six, and also associating instructional strategies with each resulting concept, in a mutually exclusive manner.

Validity and Validation

The concept of validity has progressed through the past 60 years from its definition, theory, and application during the validation process. *The Standards for Educational and Psychological Testing* (*Standards*) was first released to institute reporting standards for tests (APA, 1954 as cited in Camara & Lane, 2006). In the 1954 edition of the *Standards* construct and concurrent validity were discussed as separate types of validity. The concept of validity was then expanded in the 1974 revision of the *Standards*, moving towards the unitary framework of validity, with an explicit endorsement of the unitary framework in the 1985 revision of the *Standards* (Camara & Lane, 2006). One of the most recent versions of the *Standards* (AERA, APA, & NCME, 1999) continues to support the unitary concept of validity, and states the significance of beginning the validation process with a clear statement regarding interpretations of scores (interpretive argument) (AERA, APA, & NCME, 1999). The following two sections will discuss the unitary concept of validity as presented by Messick (1989) and the interpretive argument as written by Kane (2006).

Validity as a Unitary Concept

Messick (1989) states: "Validity is an integrated evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of inferences and actions based on test scores or other modes of assessment" (p. 13). In this seminal statement about validity, many inferences can be made. 1) Validity is integrated, in that multiple sources of evidence are required to make an argument; 2) Validity is a matter of degree, it cannot be accomplished; and 3)

Empirical evidence and rationales are needed to support inferences based on test scores; therefore, a test is not valid, inferences about test scores are valid.

According to Messick (1989), construct validity comprises all forms of validity evidence because content relevance and representativeness, and criterion related evidence, contribute to score interpretations. Simply put, construct validity is "the integration of any evidence that bears on the interpretation or meaning of test scores" and the traditional validity types (content, criterion-related, and predictive) are forms of construct validity evidence. In addition to explicitly delineating construct validity as validity, Messick (1989) also noted the significance of social consequences, as they are impacted by score interpretation as well.

Although construct validity is the whole of validity, Messick (1989) states that specific evidence is required for relevance (content), purpose, and utility (test criterion measures) of instruments in a given context. He also cautions against relying on one type of validity evidence as sufficient for a validity argument. To ease the temptation of relying on one type of evidence as sufficient evidence for validity, and to incorporate social consequences into the concept of validity, Messick (1989) presented the unified validity framework.

The unified validity framework provided by Messick (1989) is presented in Table 5. This validity framework is composed of two interconnected facets: 1) Source of justification (evidential basis and consequential basis), and 2) function/outcome (test interpretation and use). The evidential basis of test interpretation and test use is construct validity; for test use, relevance (for the purpose) and utility (in a given context) are

combined with construct validity. The consequential basis of test interpretation is value implications and the consequential basis for test use is social consequences. McNamara and Roever's (2006) reinterpretation of the progressive validity matrix presented by Messick (1989) is presented in Table 6.

Table 5. Facets of Validity

	Test Interpretation	Test Use
Evidential Basis	Construct validity	Construct validity + Relevance/utility
Consequential Basis	Value Implications	Social consequences

Table 6. Facets of Validity Interpreted

	What test scores are assumed to mean	When tests are actually used
Using evidence in support of claims: test fairness	Construct validity	Are these interpretations meaningful, useful and fair in particular contexts?
The overt social context of testing	What social and cultural values and assumptions underlie test constructs and the sense we make of test scores	What happens in our education systems and the larger context when we use tests?

Validation through an Interpretive Argument

The *Standards* describes validation as follows:

> Validation logically begins with an explicit statement of the proposed interpretation of test scores, along with a rationale for the relevance of the interpretation to the proposed use. The proposed interpretation refers to the construct or concepts the test is intended to measure… To support test development, the proposed interpretation is elaborated by describing its scope and extent and by delineating the aspects of the construct that are to be represented. The detailed description provides a conceptual framework for the test, delineating the knowledge, skills, abilities, processes, or characteristics to be assessed (AERA, APA, & NCME, 1999, p. 9).

Kane (2006) builds on Messick's (1989) unitary framework by providing direction for progressing through the process of validation, which can be defined as the development of the argument for, or evidence to support, the inferences made from assessment scores. Kane (2006) offers necessary guidance by presenting the validation process as a two-part argument: the interpretive argument and the validity argument. The interpretive argument clearly specifies the projected interpretations and score uses by designing a network of inferences and associated assumptions that originate with the observed performance and ends with the decisions based on the observed performance. Alternatively, the validity argument evaluates the interpretive argument.

Kane (2006) compares the interpretative argument to a theory. The purpose of a theory is to provide a framework for interpreting an observed event and accomplishing goals. Similarly, the interpretive argument provides a framework for the interpretation and use of test scores. Theories and interpretative arguments are evaluated by: clarity of the argument, coherence of the argument, and the plausibility of the inferences and

assumptions. The validity argument is separated into a development stage and appraisal stage. During the development stage, the test and interpretative argument are developed and strengthened. During the appraisal stage, the interpretive argument is evaluated from a critical stance.

Validity, Validation, and Students' Six

Cronbach (1980) states: "The job of validation is not to support an interpretation, but to find out what might be wrong with it. A proposition deserves some degree of trust only when it has survived serious attempts to falsify it" (p. 103). Given the foundation of the unitary concept of validity and validation through an interpretive argument, it is undeniably imperative to investigate the construct of culturally relevant pedagogy, as defined by Students' Six. Because culturally relevant pedagogy is programmatically defined as six distinct concepts with specific strategies associated with each concept, an argument for construct validity is necessary before developing a rubric that will score examinees based on their implementation of culturally relevant practices as defined by Students' Six (six concepts, with distinct instructional strategies).

Further, the program is delivered in the same format, six concepts with distinct strategies. This investigation is even more important when social implications are considered, because teachers will reflect on their practice within the context of six concepts, and these interpretations may, or may not, be supported by an in-depth analysis of the validity argument for six distinct concepts. Table 7 places Students' Six in

Messick's (1989) progressive validity matrix, reinterpreted by McNamara and Roever (2006), to further show the necessity of examining the validity argument for this program.

Table 7. Validity in the Context of Students' Six

	What test scores are assumed to mean	When tests are actually used
Using evidence in support of claims: test fairness	***Construct validity*:** Is there evidence to suggest that there are six distinct concepts associated with culturally relevant pedagogy, as defined by Students' Six?	***Are these interpretations meaningful, useful and fair in particular contexts?*** Are the interpretations that will be made from Students' Six rubric meaningful and useful?
The overt social context of testing	***What social and cultural values and assumptions underlie test constructs and the sense we make of test scores?*** Culturally relevant pedagogy id on the idea that teachers should be culturally sensitive, and anti-racist. These scores should be couched in a language that doesn't suggest racism, or cultural competency.	***What happens in our education systems and the larger context when we use tests?*** Will this rubric provide feedback that will ultimately increase student achievement?

Concept Mapping

Concept mapping is used to investigate the validity argument for Students' Six. Concept mapping is a methodology that has been endorsed across disciplines for

planning, consensus building, and evaluation. Public and mental health, organizational psychology, business, and education are a few disciplines that have incorporated this technique into their evaluation strategies (Kane & Trochim, 2007). Concept mapping uses range from determining funding allocations, to assessments of needs and understanding, and conceptual frameworks (Trochim, 1989).

Rosas and Camphausen (2007) used concept mapping for content specification for a scale. According to Rosas and Camphausen (2007), because of its incorporation of multidimensional scaling, concept mapping is an attractive method for investigating construct validity. Similar to the current study, the purpose of Rosas and Camphausen's (2007) investigation was to provide statistical and theoretical support for an assessment, which is essentially construct validity.

Concept Mapping Methodology

Concept mapping is a mixed methods research design (Bedi, 2009; Caracelli & Greene, 1993; Greene, Caracelli, & Graham, 1989; Kane, 2006) that describes processes for systematically representing ideas in the form of graphs, pictures, and maps (Kane, 2006). The processes used for concept mapping methodology typically integrate statistical techniques, and group activities (such as brainstorming, idea sorting, and rating tasks) in an effort to facilitate the collection of perspectives from a variety of stakeholders for the purposes of settling group issues, acquiring definitions, or theory and concept formation phases of planning, and evaluation (Kane 2006, & Trochim, 1989). In turn, this participatory approach to collecting data ensures that all voices are involved in the study,

because stakeholders ultimately facilitate the conceptualization, results, and interpretation of the data by providing the content for the study (Kane, 2006).

The purpose of concept mapping is to pictorially represent *all* of the ideas of a group; the content of the map is entirely determined by participants (Trochim, 1989). The process of constructing the map involves two overarching steps. First, ideas are generated, sorted and ranked by stakeholders; then, the relationship between ideas is investigated using multivariate techniques, multidimensional scaling, and cluster analysis; results of those analyses are then graphically depicted. Lastly, after the map is completed and presented, stakeholders decide how the map will be used and the plan of action is developed. Figure 2 outlines the concept mapping process from conception, to action. (Kane, 2006).

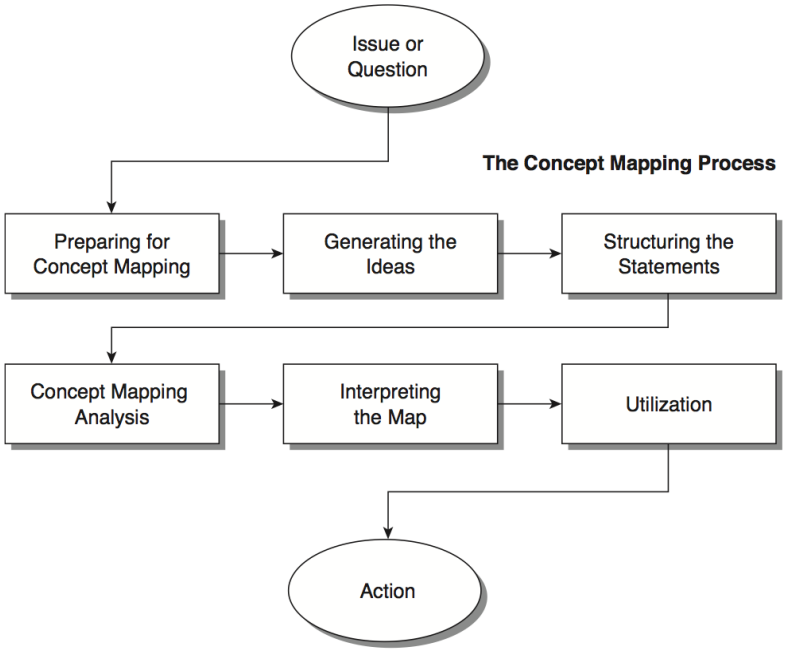


Figure 2. Concept Mapping Process

Concept mapping, as it is often practiced in the Trochim (1989) framework, follows several steps. Kane (2006), aligned very closely with Trochim (1989), identifies six distinct steps in the concept mapping process: (1) preparing for concept mapping; (2) generating the ideas; (3) structuring the statements; (4) concept mapping analysis; (5) interpreting the maps; and (6) utilization. This framework for conducting concept mapping assumes that there is an identifiable group responsible for guiding the evaluation, and the facilitator manages the process as content is provided, interpreted, and used by participants (Trochim, 1989).

Preparing for concept mapping. The first step in the concept mapping process is to prepare for the procedure (Trochim, 1989; Kane, 2006). Preparation includes identifying the focus, relevant stakeholders, scheduling and logistics. The focus for the brainstorming portion is typically developed as a focus statement, which provides instructions for the activity by asking participants to "Generate short phrases or sentences that describe ___". Secondly, the focus of the rating dimension(s) is determined. Often times, participants are asked to appraise (on a Likert-type scale) each statement generated during the brainstorming session on some dimension that is deemed relevant to the concept in question (Bedi, 2009). During the preparation phase, these details are clarified to ensure a smooth process that results in meaningful information.

Generating ideas. Following Trochim's (1989) framework, the second step in the concept mapping process is the generation of statements. Participants are asked to generate many statements, without criticism. There is no limit as to the number of statements that can be generated; however, due to practical and computational constraints

the rule of thumb is to work with a final list of 100 statements or less, which ensures a diverse representation of ideas and limits participant fatigue (Trochim, 1989; Kane, 2006; Bedi, 2009).

Structuring statements. The third step of the process is the structuring of statements. The structuring portion of the analysis involves the grouping (sorting) and ranking of statements. During the grouping step, participants are asked to group statements "in a way that makes sense to you" (Kane, 2006; Trochim, 1989). However, there are a few caveats to those instructions: (1) each statement can only be placed in one pile; (2) all statements can not be put in a single pile; and, (3) all statements can not be put in their own pile (some statements may be sorted by themselves). For the ranking portion of the third step, each participant ranks each statement on dimensions that were identified in the first step (prepare for the procedure).

Analysis. Next, the concept mapping analysis begins. Multidimensional scaling (MDS) is used to compute concept maps, which locates each statement as a separate point on a map (Kane, 2006), using the frequency with which statements were grouped together across participants (Bedi, 2009). According to Bedi (2009), MDS plots items in such a way that the distance between points is relative to that of the similarity of items (items that are closer, are sorted together more frequently).

MDS is achieved in two steps; first, the results of each participant's sorting task are combined across people to create a group similarity matrix (Trochim, 1989). In order to create the group similarity matrix, the results of each person's individual sort are imputed into a matrix with as many rows and columns as statements, and filled with

zeroes or ones. Zeroes indicate that statements in a given row and column were not sorted in the same pile for a particular participant, whereas a "one" indicates that statements in a given row and column were sorted in the same pile for a given participant. Next, the individual sort matrices are added together to obtain a combined group similarity matrix. The combined group similarity matrix also has as many rows and columns as statements; but, instead of zeroes and ones, the combined group similarity matrix is populated with values that represent how many people placed a pair of statements in a pile.

A hierarchical cluster analysis is then conducted to create a general conceptual grouping of the statements by separating the statements into clusters (Kane, 2006). Hierarchical cluster analyses are additive in that they provide all possible cluster solutions, and as the algorithim progresses, couples of clusters are combined to create a single cluster (Trochim, 1989). Cluster trees (also known as dendrograms) are generally used to pictorially display the cluster solutions, at each level.

Graphically displayed results. Lastly several graphs are developed to display the results of the analyses, where a point and statement number generally represents each statement. Point maps display the results of the MDS analysis, showing how statements are related to each other by proximity (points that are close together were grouped together more frequently). Point cluster maps overlay the results of the hierarchical cluster analysis on the point map to show how statements were grouped. Statement maps are used to display each statement as a numbered point. Cluster maps show the results of the cluster analysis, without including the statements that were used to generate each cluster. Cluster and rating maps present the average rating values for each cluster,

whereas pattern matches compares average cluster ratings between variables. Point and cluster rating maps are used to display the average ratings for each statement and cluster (Trochim, 1989; Kane, 2006). Finally, go-zones display the rating variables within a cluster, divided by "zones" (quadrants) above and below the mean of each rating criteria (Kane, 2006).

Sampling Requirements. The concept mapping process can be used with groups of any size, with the primary focus being the concept under investigation. It has been reported that 10 to 20 participants are manageable and provide valid results. Researchers are encouraged to be sure that participants' experiences are thoroughly described, by collecting statements until redundancy of statements appears. Borrowing from quantitative principles, the more respondents at each stage of the process the better, because the goal of concept mapping is to collectively represent and understand a concept. (Trochim, 1989)

Assessment Engineering

The results of the concept mapping analysis are used to develop a rubric that is designed using Assessment Engineering. Assessment Engineering (AE) is a contemporary framework for designing and implementing replicable, sustainable formative assessments (assessments used during the learning process and provide feedback) by (1) defining constructs (using construct map); (2) developing item models (using task models); (3) assembling automated tests; and (4) applying psychometric models to item responses (Luecht, 2013). This engineering-based approach for designing

and implementing tests, which is based on Mislevy's (2006) evidence-centered design (ECD), results in purposefully constructed items for a specified purpose (Luecht, 2013).

AE addresses three primary weaknesses of traditional approaches to item development: (1) there is not an infallible system for writing items; (2) subject matter experts typically don't agree on content representation; and (3) content blueprints are developed independently of statistical properties (difficulty, reliability, etc) and ignore task complexity. AE addresses these weaknesses by asserting that (1) content is not the same across a scale; (2) a family of items can be developed with precise specifications; and (3) large numbers of items can be developed that share the same cognitive tasks (Luecht, 2013).

Constructs, which are theoretical concepts that the measurer intends to make inferences about, are the foundation of AE. To this end, the parts of AE that will be discussed in detail involve the use of construct maps and task models. Construct maps are a visual display for classifying levels of proficiency and skills by documenting the progression of ordered claims, and the required evidence needed to make those claims (Luecht, 2013). Task models are specifications for a family of items and describe three characteristics of statements on a particular construct map: (1) objects and their properties, (2) relationships among those properties, and (3) functional clauses that describe the actions on the objects (Luecht, 2013).

Developing construct maps. When developing construct maps, one should start with a thorough understanding of the construct they intend to measure, because construct maps are used to provide a visual representation of the construct (please note, construct

maps only represent one construct at a time). In doing so, construct maps typically outline a particular measurement scale, and present claims that outline the progression of the construct from the lowest to the highest level of the scale. In order to develop these construct maps, the investigator specifies the ordered claims and the observable evidence needed for each claim.

Construct maps can be developed using qualitative groupings of respondents (examinees) or responses. Respondent-construct maps are used to order respondents whereas item-response construct maps are used to order item responses. In either case, it is imperative that the researcher has a logical and consistent definition for the content of the construct, and ensures that the construct has a theoretical continuum (Wilson, 2005).

Developing task models. After creating the construct maps, task models are developed to describe and identify skills and key properties relevant to the task, specify the cognitive level of the action(s) required by the task, and classify response actions needed for scoring (Luecht, 2013). Task models can be viewed as a generic profile of an assessment task and are presented on task model maps. Ideally each task model represents one item, but through the development of task model templates, multiple items can be created from a template. The task models have a location on the map of the proficiency scale and are distributed in a way in which the task models are grouped into different performance levels. Simply put, the task model map demonstrates the number and types of items along a continuum, whereas the construct maps state claims about students at different ability levels.

Template design and psychometric calibration. Each task model should yield multiple templates, which are elaborated descriptive "item models" that are used to render and score the items in a family. There are three components of a task template: (i) rendering model, which is a detailed format that controls the look and feel of an item; (ii) scoring evaluator, which controls the responses for the data collected; and (iii) data model, which contains all of the data for presenting and scoring the items (Luecht, 2013). In this way, automated test assembly procedures can be employed to build future items and assessments. Because the models (construct maps and templates) are developed prior to test administration, the models are assessed in a confirmatory manner to assess the model-data fit to assess the consistency between the expected and observed responses. This ensures that the model is working as intended, and if inconsistencies exist, modifications can be made until the model works as intended (engineering the assessment) (Luecht, 2013)

CHAPTER III

METHODS

The purpose of this study is to provide an empirical investigation of the concepts underlying culturally relevant pedagogy, as it is defined by Students' Six. The methods presented in this section, inform each of the following research questions.

Research Question #1: What are the specific instructional strategies associated with culturally relevant pedagogy, per Students' Six participants? In what ways do these instructional strategies overlap?

Research Question #2: How do Students' Six participants collectively categorize instructional strategies that are indicative of culturally relevant pedagogy, per Students' Six Framework?

Research Question #3: How can assessment engineering be used to develop a rubric that assesses the implementation and effectiveness of culturally relevant pedagogy, per Students' Six participants' categorization of instructional strategies that are indicative of culturally relevant pedagogy?

This chapter provides an in-depth discussion about the methods and procedures that were used to implement this study. This chapter begins with a pictorial overview of the study, then proceeds with a discussion of the sample of participants, followed by the concept mapping process that was used to analyze the data, and lastly, the use of assessment engineering for rubric development. Figure 3 outlines the concept mapping

process vis-à-vis the context of the current study. Prior to partaking in any of these steps, an IRB application was submitted to, and approved by UNCG's Institutional Review Board in the Office of Research Integrity (Appendix A).

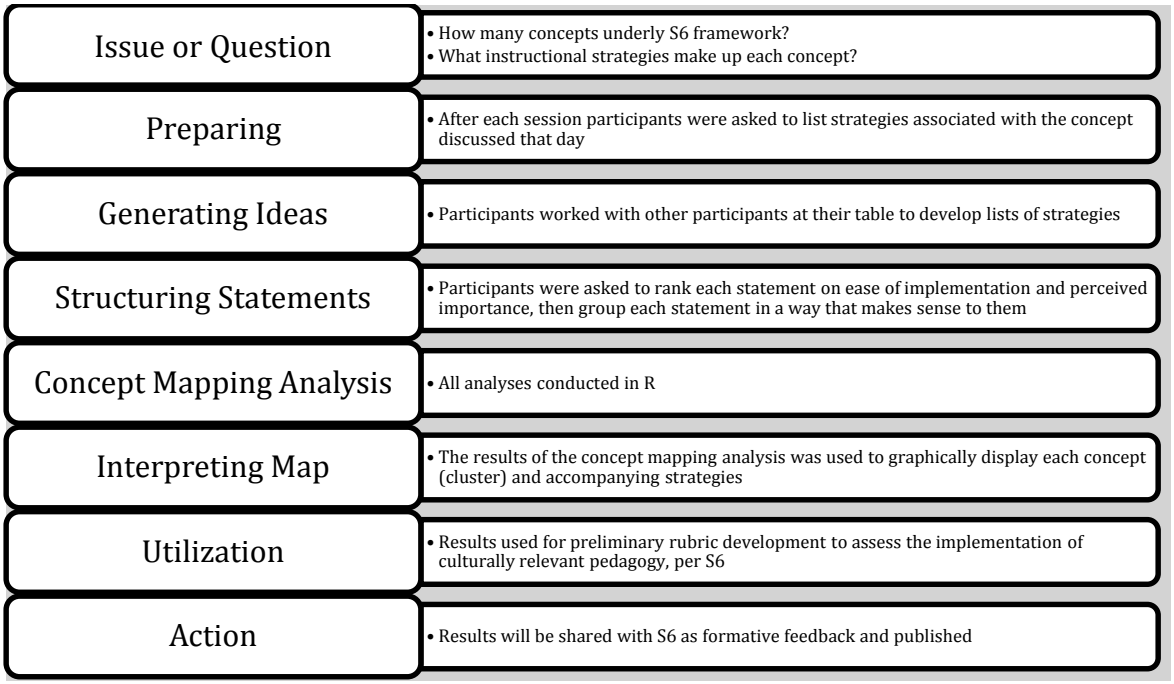


Figure 3. Overview of Study

Sample

The participants that took part in this study were K-12 teachers, who were currently teaching in Chapel Hill-Carrboro County Schools. More specifically, those who participated in the statement generation phase of this study were currently involved in the Students' Six professional development series, for the first time, during the 2014-15 academic year. Those who were invited to participate in the statement-structuring phase

of this study completed the Students' Six professional development series within three years of the session.

While it is possible that participants may feel obliged to constrain their groups of statements to six (there are six concepts in the Students' Six model) due to their involvement with Students' Six, it should be noted that a subtle purpose of this study is consensus about the Students' Six theoretical stance (how many concepts and exclusivity of strategies), and consensus is typically made between individuals involved in a program or organization. Because the purpose of this study is to identify and gain consensus about the construct of culturally relevant teaching, as defined by Students' Six, by investigating the distinctiveness of its underlying concepts and strategies, it was determined that the sample would be limited to Students' Six participants. Further, one of the primary premises of culturally relevant teaching is that reflection, and experiences impact perception and practice. Non-students' Six participants will not be included in this study, because they may not share the same critical stance toward instruction and thus may view some strategies from a perspective that does not align with the underlying assumptions associated with culturally relevant pedagogy.

Generation of Statements

A total of 141 statements were generated throughout the course of the Students' Six professional development series. Students' Six is comprised of six professional development sessions, each designated to one of the Students' Six, six concepts. At the end of each session, participants were asked to develop a list of as many strategies they could think of that exemplifies the concept they discussed during that particular session

(see Appendix B for a sample worksheet). At the first session, participants were asked to complete this task individually. After reflection and review of the extent of repetitive statements provided, it was decided that teachers would complete this task as a group (participants seated at the same table worked together) for the remaining five sessions.

The statements were reviewed after the sixth professional development session, wherein statements that were repeated were removed from the list. The revised lists of strategies were presented to program administrators, by concept. At that time, program administrators reviewed, and added to the list of statements to ensure representativeness and completeness. All of the statements were then randomly entered into an Excel spreadsheet, and identified according to the Excel row they were on. Table 8 shows the number of statements that were originally provided by participants, the number of statements removed due to repetition, and the number of statements added during the data quality check process (review of statements by program administrators). Appendices C-G provides the content of each original strategy/statement by concept.

Table 8. Data Quality Check: Frequency of Statements

S6 Concept	Original Statements	Removed Statements	Additions: Quality Check	Total
Visibility	110	67	6	49
Proximity	32	19	2	15
Connecting to Students' Lives	24	4	6	26
Engaging Students' Culture	11	0	7	18
Addressing Race	14	5	6	15
Connecting to a Larger World	11	3	10	18
Total	202	98	37	141

Structuring of Statements

Participants sorted the final list of 141 statements, in-person and online (participants that were unable to make the sorting session completed the activity online). A 10" x 13' manila envelope containing the final list of generated statements on individual business cards, instructions, an IRB Consent Form, rubber bands, index cards, and a rating and demographic handout (Appendix H) were given to each participant. After all materials and instructions were provided, participants were asked to rank each statement/strategy on their perceived level of importance and ease of implementation. After ranking each statement, participants were asked to sort the statements in categories that "make sense to them." Following the sorting of statements, participants used their blank index cards to name each of their grouped statements and secured their groups along with the index cards with rubber bands.

Analysis of Statements

Multidimensional scaling and hierarchical cluster analysis were conducted in R to analyze the qualitative data (statements and groupings) in a quantitative manner. The first step of the data analysis process was the creation of individual and group similarity matrices, followed by multidimensional scaling and hierarchical cluster analysis techniques. Lastly, the results were pictorially represented as a series of graphs.

Similarity matrices. Each participant's grouped statements were quantitatively transformed into a similarity matrix in R, using the cltoSim() command in the mcclust package (Fritsch, 2009). Similarity matrices are binary, symmetric matrices that are used to quantitatively display each participant's groupings (each participant has one similarity matrix). Each row and column of each similarity matrix represents a statement (i.e., row 1, and column 1, represents statement 1), whereas the 0's and 1's that populate the similarity matrix indicate whether the statements were sorted together.

For example, Figure 4 displays a fictitious similarity matrix. There are ten statements in this example, hence, ten rows and columns. Each row and column number represents a statement. Notice that the diagonal of the matrix is populated with ones, because each statement was at least sorted with itself. Further, notice that in column one, there are four 1's that occur at rows one, two, three, and ten. These results indicate that statements one, two, three, and ten were sorted together for this particular participant.

Individual Sort

Individual Statements	[,1]	[,2]	[,3]	[,4]	[,5]	[,6]	[,7]	[,8]	[,9]	[,10]
[1,]	1	1	1	0	0	0	0	0	0	1
[2,]	1	1	1	0	0	0	0	0	0	1
[3,]	1	1	1	0	0	0	0	0	0	1
[4,]	0	0	0	1	1	1	0	0	0	0
[5,]	0	0	0	1	1	1	0	0	0	0
[6,]	0	0	0	1	1	1	0	0	0	0
[7,]	0	0	0	0	0	0	1	1	1	0
[8,]	0	0	0	0	0	0	1	1	1	0
[9,]	0	0	0	0	0	0	1	1	1	0
10,]	1	1	1	0	0	0	0	0	0	1

Figure 4. Sample Individual Similarity Matrix
Note. Each value is a pile number, each column is an individual's sort and each row is a statement.

Each participant's similarity matrix was then summed to create a final similarity matrix. The final similarity matrix is different from the individual similarity matrices, because it is not binary (populated with 0's and 1's). The final similarity matrix is populated with values that represent the frequency in which statements were sorted together, and the diagonal represents the number of participants. Finally, the group similarity matrix was subtracted from the total number of participants, resulting in a dissimilarity matrix that was used to conduct the multidimensional scaling analysis.

Multidimensional Scaling

Multidimensional scaling is a class of techniques that utilize proximities (a number representing how similar or different two objects are) to produce a "geometric configuration of points" (Kruskal & Wish, 1978). For this study, proximity information was collected from the dissimilarity matrix, which is produced as a result of the sorting

activity. Thus, the resulting geometric configuration (map) graphically depicts the distances between statements; the more dissimilar statements are, the further apart they appear on the map. Conversely, the more similar they are, the closer they will be on the map. Simply put, for this study, strategies that are sorted together more frequently will be closer together, and strategies that are not frequently sorted together will appear further apart.

Dimensionality. Dimensionality is an important consideration when conducting MDS analyses, since the data are represented as locations in space, characterized by axes. In addition to interpretability, goodness-of-fit measures can be used to determine the most appropriate number of dimensions used to represent MDS results. Stress (the square root of a normalized residual sums of squares), which is a common statistic used to determine model fit, essentially measures "badness of fit", as larger values are indicative of bad fit (Kruskal & Wish, 1978). Although these approaches are well documented for determining fit, Kruskal and Wish (1978) and Trochim (1989) suggest that a two dimensional representation of MDS results is suitable for concept mapping because the results are used as a foundation for cluster analysis. For this reason, the data for this study are interpreted using two dimensions.

Metric specification. Metric MDS is used to describe data that uses numerical or metric properties to describe proximities, alternatively non-metric MDS explores relationships that are not described by a formula. Essentially non-metric MDS is suitable for research that describes a pattern independent of numerical metric properties (Kruskal & Wish, 1978). Because the teaching strategies associated with culturally relevant

pedagogy are dependent upon numerical patterns, metric MDS was used to analyze this data. Metric MDS was conducted in R using the cmdscale() function, specifying two dimensions as suggested by Kruskal and Wish (1978) and Trochim (1989).

Hierarchical Cluster Analysis

Cluster analysis is a statistical method for grouping data that are similar. The objective of cluster analysis is to mathematically group data, such that observations within clusters are similar, but clusters are dissimilar from each other (Rencher, 2002; Anderberg, 1973). In this study, strategies that are most similar to each other will be grouped together, and distinct groups (clusters) will represent clusters of strategies, that are dissimilar from each other.

Hierarchical cluster analysis was used for this study. Hierarchical cluster analysis is an agglomerative approach, which means that each cluster is merged into another cluster (typically the two closest clusters are merged into a new cluster), resulting in one cluster containing all of the data (Rencher, 2002; Anderberg, 1973). This approach to cluster analysis is graphically presented as a dendrogram, representing each cluster and the statements that make up the cluster(s).

The hierarchical cluster analysis, using the two dimensional coordinate matrix from MDS, was conducted in R using the hclust() and plot() functions (R Development Core Team, 2011). More specifically, the hclust() command specifying the Ward Method was used to determine the cluster merges so that clusters are merged when the merge results in a minimal increase in the group error sums of squares (Anderberg, 1973; Ward, 1963). The plot () command was used to produce the dendrogram.

Representation of Point and Cluster Data

The findings of these analyses are presented graphically using the plot() function in R (R Development Core Team, 2011). The results of MDS, and hierarchical cluster analysis are represented pictorially; namely, a point map, point rating map, and a cluster-rating map. Each of the graphical displays is described below.

Point map. Point maps are used to represent the results of the two-dimensional metric MDS analysis. Each statement, represented by a statement number, is plotted on a two dimensional plane. This plot shows how each statement is spatially oriented, indicating the proximity of each statement. Additionally, each statement is color coded by group, showing how each statement is clustered.

Point-rating map. The point-rating map shows how each statement, on average, was rated on ease of implementation and importance. Each point is color coded by cluster, resulting in a figure that displays how each statement within clusters was rated along these dimensions. This figure is useful for determining how participants perceive each strategy and if there are patterns by cluster.

Cluster-rating map. Similar to the point-rating map, the cluster-rating map only shows the resulting clusters along the ease of implementation and importance scales. This map will help to show how clusters (concepts) are ranked, on average, along these dimensions. This visual representation will aid in a discussion about how each of the resulting concepts should be discussed and weighted during rubric development.

Go-zone displays. Go-zone displays were created for each cluster with point ratings for each statement. The 2-dimensional plane is divided into four quadrants

according to the average rating for level of implementation and importance. The upper-right quadrant (Quadrant I) represents statements that are deemed as important and difficult to implement on a daily basis. Strategies in the upper left corner (Quadrant II) are deemed as less important, and difficult to implement. Strategies in the lower left quadrant (Quadrant III) are easy, and less important; whereas strategies in the lower right corner (Quadrant IV) are important and easy to implement.

Assessment Engineering

Utilization is always a priority for applied researchers. For this reason, utilization is explicitly addressed with the incorporation of Assessment Engineering as a platform for rubric development to assess the implementation of Students' Six concepts and related strategies. The results of the concept mapping analysis are used for the initial development of a rubric for Students' Six. More specifically, levels of implementation are developed based on the go-zone map, and strategies within zones are used to define implementation levels by cluster. Figures 5 and 6 demonstrate how the concept mapping process translates into a rubric.

Notice that that each quadrant is color coded in Figure 5. Because there are four quadrants, there are four levels of implementation. The corresponding levels of implementation are represented by the same color in Figure 6. The strategies in each quadrant are summarized to develop an operational definition for each level of implementation by cluster. For example, the strategies in the white quadrant in Figure 5 are summarized to develop an operational definition for the first level of implementation for that specific cluster in Figure 6.

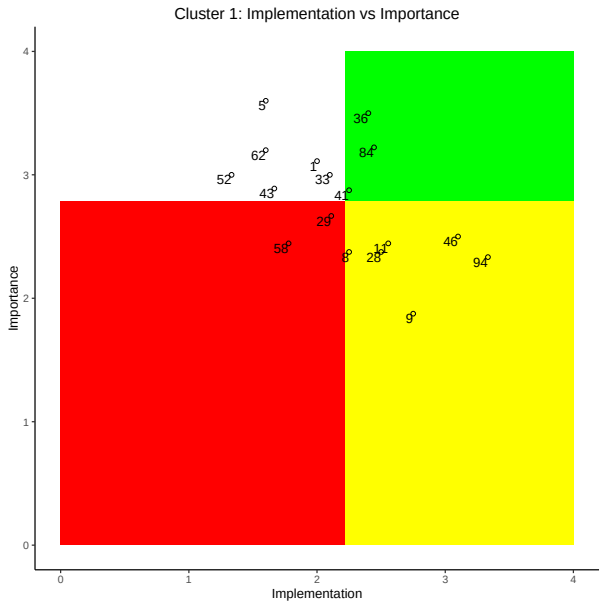


Figure 5. Sample Go-Zone Map

Sustaining	operational definition/ summary	operational definition/ summary	operational definition/ summary	operational definition/ summary	operational definition/ summary	operational definition/ summary
Trans-formation	operational definition/ summary	operational definition/ summary	operational definition/ summary	operational definition/ summary	operational definition/ summary	operational definition/ summary
Adaptation	operational definition/ summary	operational definition/ summary	operational definition/ summary	operational definition/ summary	operational definition/ summary	operational definition/ summary
Adoption	operational definition/ summary	operational definition/ summary	operational definition/ summary	operational definition/ summary	operational definition/ summary	operational definition/ summary
Continuum	**Cluster1**	**Cluster2**	**Cluster3**	**Cluster4**	**Cluster5**	**Cluster6**

Figure 6. Translation of Go-zone into Rubric

CHAPTER IV

RESULTS

This chapter provides descriptive information about the sample of Students' Six participants who partook in the concept mapping activity. Results are presented in the order of the research questions that guided this study. Within the presentation of results by research question, findings resulting from associated stages of the concept mapping process are presented.

Description of the Sample

The sample was comprised of K-12 teachers, who were currently teaching in Chapel Hill-Carrboro County Schools. There were two distinct phases of the implementation of this study: statement generation and statement structuring. Those who participated in the statement generation phase of this study were currently involved in the Students' Six professional development series, for the first time, during the 2014-15 academic year. Those who were invited to participate in the statement-structuring (concept mapping) phase of this study completed the Students' Six professional development series within three years of the session.

A total of ten Students' Six educators engaged in the concept mapping activity. 80% (n=8) of participants identified as White, and 20% (n=2) identified as Black. The majority of participants were teachers (80%, n=8) and female (80%, n=8), who work with

a range of grade levels (3rd-12th), and identified themselves to be in an age range between 26 and 54 years old.

Research Question #1: What are the specific instructional strategies associated with culturally relevant pedagogy, per Students' Six participants? In what ways do these instructional strategies overlap?

Statement Generation

A total of 141 statements were generated throughout the statement generation phase of the concept mapping process. Each of the statements is presented in Appendices C-G. Appendices C-G are divided into three categories: Original List of Statements, Revised List of Statements, and Data Quality Check: Additions. The Original List of Statements present statements collected from participants throughout the six professional development sessions. The Revised List of Statement presents a revision of the original list in which repeated statements are removed. Finally, the Data Quality Check: Additions column presents statements that were added during the data check phase of the concept mapping process.

There were a total of five statements that overlapped Students' Six concepts. Table 10 shows each of the statements and weeks the overlaps occurred. As seen in Table 10, statements overlapped during Weeks 1-3, and 4 out of 5 statements overlapped between Weeks 1 and 2.

Table 9. Overlapping Instructional Strategies

Statement	ID	Week 1: Visibility	Week 2: Proximity	Week 3: Connecting to Students' Lives
Positive eye contact	15	X	X	
Eye level conversations	52	X	X	
Greet students at door	1	X	X	
Hugs and/or handshakes throughout the day	29	X	X	
Attend students' activities	27	X		X

Structuring of Statements

During the structuring portion of the concept mapping process participants were asked to group statements in a way that makes sense to them, while abiding by the following caveats: (1) each statement can only be placed in one pile; (2) all statements can not be put in a single pile; and, (3) all statements can not be put in their own pile (some statements may be sorted by themselves). After grouping the 141 statements, participants were then asked to name their piles. Table 10 displays the results of the statement-structuring phase, and Table 11 is color coded to demonstrate how each participant's titles are grouped into themes.

On average, participants sorted statements in 6 to 7 piles (average of 6.5 piles per person). A total of six themes emerged from the names participants provided for their piles: Race, Students' Future, Culture, Family/Community, Relationships, and Curriculum/Instructional Strategies. *Table 12. Frequency of Themes* presents the overlap

of themes arriving from participants' pile names. 80% of participants sorted their statements in piles relating to Race and 90% of participants created piles related to Students' Future.

Table 10. Participants' Named Groups

ID	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10
1	Include race in classroom	Care about students' future	Recognize Cultures	Reach out to family/community	Acknowledge student strengths and accomplishments	Get to know students as individuals	Show students you care	Include all students	Use teaching strategies that allow student choice	Welcoming Environment
2	Connecting to Future Selves	Visibility	Connecting to students' lives	Engaging Students' Culture	Addressing Race	Proximity				
3	Empowering Students	Culture	Relationships	Individuality	Teaching Strategies	The future	Conversations	Community-keeping parents in the loop	Student-centered classroom	
4	Connecting with students futures	Integrating race into the classroom in a positive manner	Connecting with students' families	Students have connection to the curriculum or to the way they learn	Talk about Race as it relates to the students (regardless of curriculum)	Treating students as valued individuals/good teaching for all students	Identifying with students as individuals			
5	Administrivia	Important but don't fit other categories	Praise and Encouragement	Connections to Families	Connections to future selves	Connections to students (now)				
6	Connect to future selves	Engaging students' cultures	Building relationships (proximity/ visibility)	Addressing Race						
7	Practices	Community	Getting to know students personally	Students' future	Classroom Activities and Objects	Family	Race			
8	Connecting to lives	Proximity	Visibility	Addressing/ discussing race	Engaging Culture	Connecting to future self				
9	Student engagement	Role models	Pedagogy	Classroom management	College/careers	Knowing students' families and cultures	Discussing race	Teaching tolerance		
10	Classroom instructional strategies	Curriculum practices	Community relations	Future self	Racial identity	Conversations about race and equitable practices	Academic achievement	Student empower-ment		

Table 11. Participants' Named Groups with Themes

ID	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10
1	Include race in classroom	Care about students' future	Recognize Cultures	Reach out to family/community	Acknowledge student strengths and accomplishments	Get to know students as individuals	Show students you care	Include all students	Use teaching strategies that allow student choice	Welcoming Environment
2	Connecting to Future Selves	Visibility	Connecting to students' lives	Engaging Students' Culture	Addressing Race	Proximity				
3	Empowering Students	Culture	Relationships	Individuality	Teaching Strategies	The future	Conversations	Community-keeping parents in the loop	Student-centered classroom	
4	Connecting with students futures	Integrating race into the classroom in a positive manner	Connecting with students' families	Students have connection to the curriculum or to the way they learn	Talk about Race as it relates to the students (regardless of curriculum)	Treating students as valued individuals/good teaching for all students	Identifying with students as individuals			
5	Administrivia	Important but don't fit other categories	Praise and Encouragement	Connections to Families	Connections to future selves	Connections to students (now)				
6	Connect to future selves	Engaging students' cultures	Building relationships (proximity/ visibility)	Addressing Race						
7	Practices	Community	Getting to know students personally	Students' future	Classroom Activities and Objects	Family	Race			
8	Connecting to lives	Proximity	Visibility	Addressing/ discussing race	Engaging Culture	Connecting to future self				
9	Student engagement	Role models	Pedagogy	Classroom management	College/careers	Knowing students' families and cultures	Discussing race	Teaching tolerance		
10	Classroom instructional strategies	Curriculum practices	Community relations	Future self	Racial identity	Conversations about race and equitable practices	Academic achievement	Student empower-ment		

Table 12. Frequency of Themes

Theme	Number of Piles	Number of Participants
Race	10	8
Students' Future	9	9
Culture	6	6
Family/Community	8	7
Relationships	6	6
Curriculum/Instructional Strategies	5	4

Research Question #2: How do Students' Six participants collectively categorize instructional strategies that are indicative of culturally relevant pedagogy, per Students' Six Framework?

Multidimensional scaling (MDS) was used to locate each statement as a separate point on a map (Kane, 2006), using the frequency with which statements were grouped together across participants (Bedi, 2009). Items that were sorted together more frequently are presented as points that are closer together. Several cluster solutions were reviewed, including a six-cluster solution; however, two cluster solutions were retained for interpretation: a three-cluster solution and an eight-cluster solution.

These two solutions were retained based on their interpretability and the similarity of statements within clusters. Basing the final solutions on the interpretability of the clusters is beneficial for defining a complex construct because this approach ensures that resulting categories are intuitive. Larger clusters lead to more variability within statements and contribute to the confusion around what valid implementation looks like in practice. Each of the resulting solutions is presented separately.

Three-Cluster Solution

The point cluster map for the three-cluster solution is presented in Figure 7, and the accompanying statements are presented by cluster in Table 13. Each cluster is color coded and named in a way that encapsulates the theme of the statements presented in Table 13. The three-cluster solution suggests that the themes that underlie the 141 statements are related to cultivating relationships, instructional strategies/classroom environment, and incorporating students' culture and experiences.

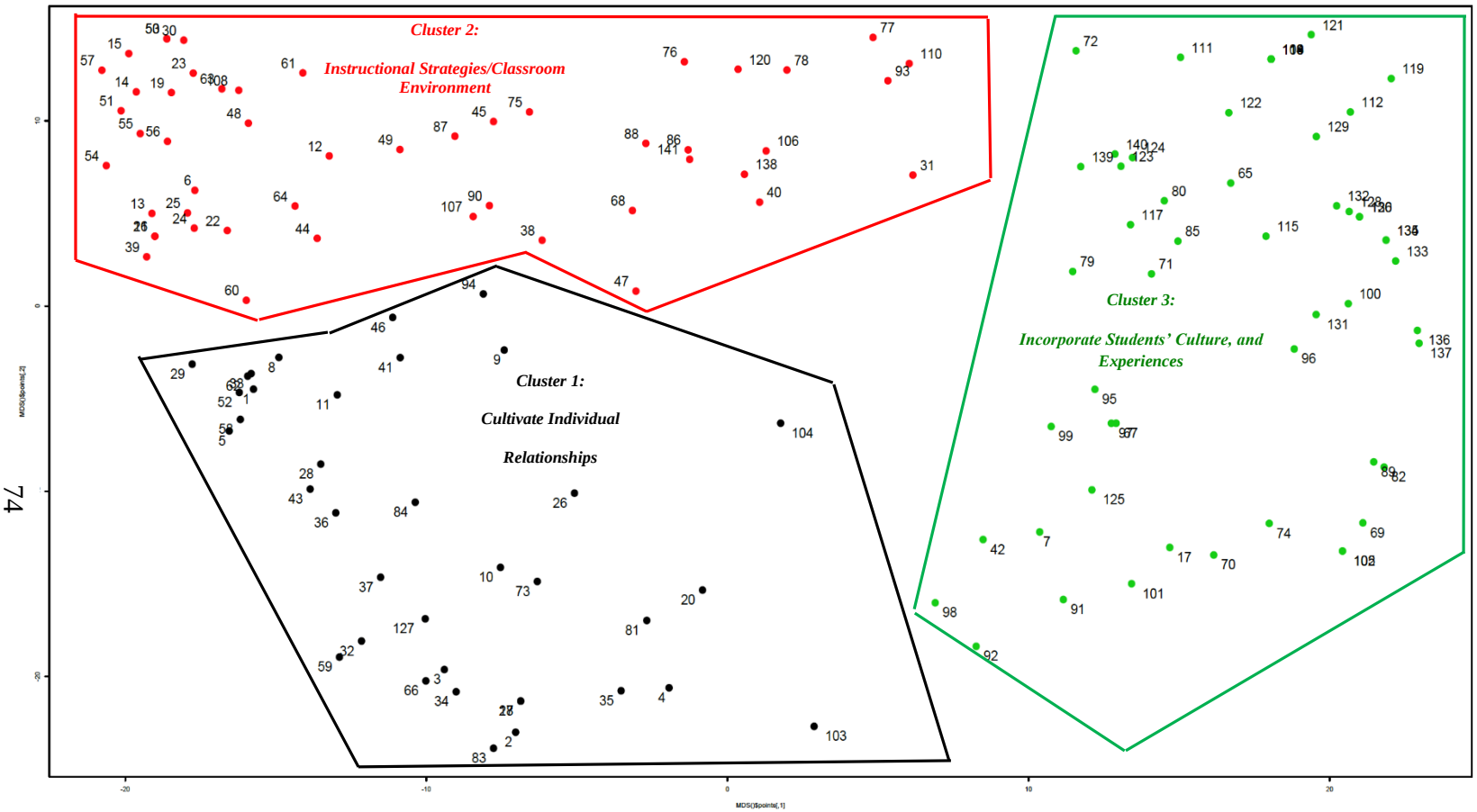


Figure 7. Three-Cluster Point Map

Table 13. Three-Cluster Solution: Statements by Cluster

Cluster 1-Cultivate Individual Relationships		**Cluster 2-Instructional Strategies/Classroom Environment**		**Cluster 3-Incorporate Students' Culture, and Experiences**	
ID	Item	ID	Item	ID	Item
1	Greet students by name at the door; Acknowledge students individually as they come to class	6	Say students name when the class discussion wraps back around to an idea/comment the student said earlier i.e. "Carly said…"	7	Try to learn a new word in each student's language every week
2	Get to know students individually	12	Compliment circle at the end of the day	17	Call parents to praise students; positive phone calls home
3	Find out students' nick names, ask if you can call them that	13	High fives to share and acknowledge students when they do something helpful or correctly	42	Celebrate students' language
4	Autobiographical letter at the beginning of the year	14	"Cold calling" on students by drawing a name from stick, card, or list to answer a question to hold accountability for all students	65	Help students accomplish their goals
5	Know every students' name and pronounce it correctly	15	Make positive eye contact	67	Aware of communication styles for your students' culture
8	Acknowledge students individually as they leave; On the way out the door each day, give each student a high-5 and state a classroom saying like "I'm brilliant and high-achieving"	16	Give specific compliments	69	Know student's family and their role in the family
9	Send personal emails when you're out of the building	19	Arrange student in a way that each student can be seen and heard (open seating)	70	Invite parents to help with student issues
10	Visit students in other classes	21	Acknowledge positive behaviors of all students in front of class	71	Allow students to discuss issues or current events that are relevant to their culture
11	Give jobs to students that highlight their unique qualities	22	Make sure every student is heard during classroom discussions	72	Take risks in classroom conversations (discuss things that may make

	(including qualities unrelated to academics)				you, or other students uncomfortable)
18	Talk to students about their lives outside of school	23	Allow wait time	74	Home visits
20	Check on students when they are absent	24	Celebrate accomplishments of all students	79	Align material (curriculum) to the lives of your students
26	Give students time to talk with each other, and you, about life	25	Thank students for their response, contribution during discussions/lectures	80	Never validate stereotypes
27	Attend students' activities	30	Eye contact with students while teaching	82	Build relationships with parents
28	Check with students throughout the day to make sure they are alright	31	Incorporate activities that students are interested in	85	Texts and readings which relate to current events and students' experiences
29	Hugs and/or handshakes throughout the day	38	Telling students that you know they can be successful and require them to get tutoring	89	Invite parents/families/community members in to share expertise
32	Talk with students about their likes and dislikes individually	39	When students are displaying a negative behavior, bending down and asking them what is wrong rather than punishing them	91	Use students' home language to communicate when possible
33	Specific praise attached to a personal action	40	Actively seek chapter books for read alouds with characters of color	92	Find out who motivates students to succeed in school
34	Know students' hobbies/interests/strengths in/out of school	44	Make sure students know each other's names	95	Engage students' cultures in all subjects
35	Speak with each student about their personal life	45	Student of the day/week	96	Having a cultural night or activity where students bring things that represent their culture
36	Respond to individual student needs and capabilities	47	All About Me boards or projects	97	Not assuming what students identify with culturally
37	Acknowledge students' individual strengths	48	Allow students to help create class agreements or "rules"	98	Teacher shares things about their culture
41	Asks students how they like to learn, or what they want to learn	49	Student choice embedded in classroom procedures and assignments	99	Acknowledge different languages, even within cultures

43	Acknowledge students who are having a bad day	50	Teacher circulates the classroom at all times	100	Acknowledging that race is not equivalent to culture
46	"Good News" sharing time	51	Creates a comfortable classroom environment	101	Get to know student's culture
52	Eye level conversations (kneeling if necessary)	53	No front or back of the classroom	102	Identifying students' family orientation towards school/education (goals, motivations, etc.)
58	Aware of students' comfort levels in terms of closeness (i.e. not standing close to a particular student if it makes them uncomfortable)	54	Move students around the classroom, be aware of seating (rotate seating chart)	105	Engage parents-have them share their child and how they best learn with you
59	Have individual conversations with students	55	Move toward students for positive behavior	109	Address race when it comes up
62	Welcoming body language, open stance	56	Open classroom, no barrier between teacher and class	111	Teach students to challenge stereotypes
66	Allow students to get to know you, share things about your personal life	57	Aware of how often you speak to students (not targeting certain students)	112	Remain neutral during conversations about race
73	Advocate for your students	60	Greet each student every day, in a way that's comfortable for individual students (hug, fist bump, hand shake etc.)	113	Be engaged in conversations about race
81	Be involved in your student's community	61	Balance the tone of conversations	114	Intentionally integrate issues of race in the curriculum/lesson plan
83	Get to know students beyond superficial facts, like favorite color	63	All classroom materials easily accessible for all students	115	Acknowledge achievements of people of color
84	Follow up on conversations with your students	64	Carpet time or class circle	116	Be knowledgeable about racial issues
94	"Get to Know You Activities" all year, not just the first day of school	68	Use students' interests to teach concepts	117	Empower students, especially those of Color

103	Motivational interview with students to determine intrinsic motivators	75	Allow students to lead conversations	118	Address contemporary social situations where race is involved
104	Be aware of communication styles	76	Teach students how to have civil conversations	119	Discuss the racial achievement gap within your own classroom and within the school as a whole
127	Let students know you care about them	77	If a teachable moment occurs, take advantage of it	121	Do not ask students of any race to speak for their entire race
		78	Plan for conversation	122	Talk with students individually about their racial experience in your class/school
		86	A wide variety of choice reading books	123	Class shared readings and texts from a wide range of cultures and perspectives
		87	Student choice on projects or assignment topics	124	Inspiration Wall
		88	Student created bulletin boards	125	Use personal relationships with students to discuss their future
		90	Students as teachers	126	Link content to future careers
		93	Expose multiple perspectives of historical and present events	128	Help students understand that there are many avenues to success
		106	Wide range of books in classroom library	129	Show students that there are successful minorities
		107	Activities which address different learning modalities	130	Follow up with students about future careers
		108	Clearly delineated classroom procedures	131	Encourage students to achieve their aspirations
		110	Discuss multiple perspectives (historical and current events)	132	Show students role models from their own cultural and racial background

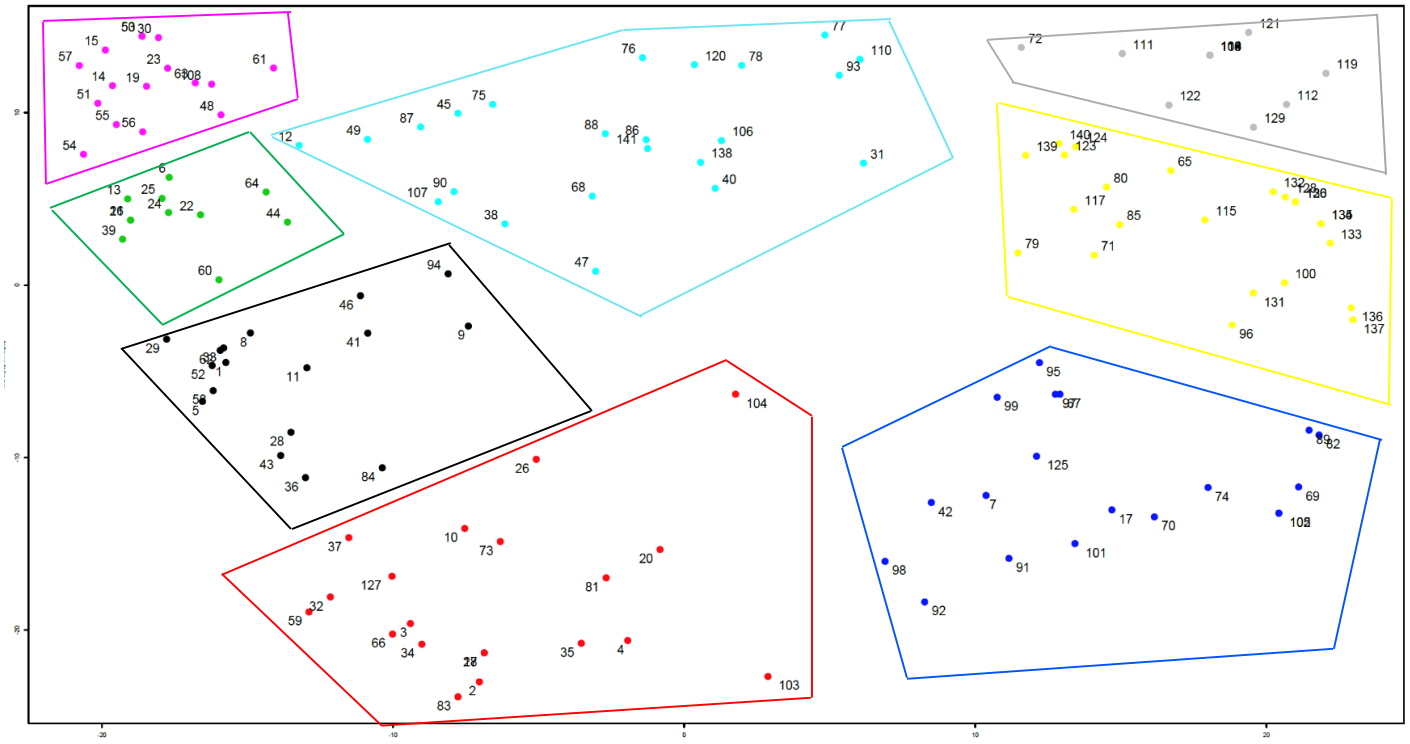
		120	Assign groups that do not leave students of color isolated	133	Talk with students about finding mentors and allies who will help them navigate their future paths
		138	Connect curricular concepts to those who helped developed them	134	Introduce students to summer learning opportunities connected to their future paths
		141	Have students complete inquiry projects several times	135	Help students apply for college or other opportunities
				136	Discuss future pathways with parents so that they understand their child's potential
				137	Help families navigate things like college applications or other special opportunities.
				139	Create opportunities to volunteer or complete community service as a part of curriculum
				140	Have experts, authors, etc. Skype into classroom

Eight-Cluster Solution

The point cluster map for the eight-cluster solution is presented in Figure 8, and the accompanying statements are presented by cluster in Tables 15-16. Each cluster is color coded and named in a way that encapsulates the theme of the statements presented in Tables 15-16. The eight-cluster solution further defines the three-cluster solution by disaggregating the tasks into sub-themes that can be categorized as Visibility in the Classroom, Visibility Outside of the Classroom, Student Specific Acknowledgements, Engage Students' Culture and Family, Student Expression and Appreciation, Neutral, Inclusive Environment, Students' Future, and Race-Centered Conversations. Table 14 presents the alignment between the three and eight cluster solutions resulting from the concept mapping analysis.

Table 14. Three and Eight-Cluster Comparison

3-Cluster Solution	8-Cluster Solution
Cultivate Individual Relationships	Visibility in Classroom Visibility Outside of Classroom
Instructional Strategies/Classroom Environment	Neutral, Inclusive Classroom Student Specific Acknowledgements Student Expression and Appreciation
Incorporate Students' Culture and Experiences	Engage Students' Culture and Family Students' Future Race Centered Conversations



Cluster Name	Color	Cluster Name	Color
Visibility in Classroom		Student Expression and Appreciation	
Visibility Outside of Classroom		Neutral, Inclusive Classroom	
Student Specific Acknowledgements		Students' Future	
Engage Students' Culture and Family		Race-Centered Conversations	

Figure 8. Eight-Cluster Point Map

Table 15. Eight Cluster Solution: Clusters 1-4

Cluster 1: Visibility in Classroom		**Cluster 2-Visibility Outside of Classroom**		**Cluster 3: Student-Specific Acknowledgements**		**Cluster 4-Engage Students' Culture and Family**	
ID	Item	ID	Item	ID	Item	ID	Item
1	Greet students by name at the door; Acknowledge students individually as they come to class	2	Get to know students individually	6	Say students name when the class discussion wraps back around to an idea/comment the student said earlier i.e. "Carly said…"	7	Try to learn a new word in each student's language every week
5	Know every students' name and pronounce it correctly	3	Find out students' nick names, ask if you can call them that	13	High fives to share and acknowledge students when they do something helpful or correctly	17	Call parents to praise students; positive phone calls home

8	Acknowledge students individually as they leave; On the way out the door each day, give each student a high-5 and state a classroom saying like "I'm brilliant and high-achieving"	4	Autobiographical letter at the beginning of the year	16	Give specific compliments	42	Celebrate students' language
9	Send personal emails when you're out of the building	10	Visit students in other classes	21	Acknowledge positive behaviors of all students in front of class	67	Aware of communication styles for your students' culture
11	Give jobs to students that highlight their unique qualities (including qualities unrelated to academics)	18	Talk to students about their lives outside of school	22	Make sure every student is heard during classroom discussions	69	Know student's family and their role in the family

28	Check with students throughout the day to make sure they are alright	20	Check on students when they are absent	24	Celebrate accomplishments of all students	70	Invite parents to help with student issues
29	Hugs and/or handshakes throughout the day	26	Give students time to talk with each other, and you, about life	25	Thank students for their response, contribution during discussions/lectures	74	Home visits
33	Specific praise attached to a personal action	27	Attend students' activities	39	When students are displaying a negative behavior, bending down and asking them what is wrong rather than punishing them	82	Build relationships with parents
36	Respond to individual student needs and capabilities	32	Talk with students about their likes and dislikes individually	44	Make sure students know each other's names	89	Invite parents/families/community members in to share expertise

41	Asks students how they like to learn, or what they want to learn	34	Know students' hobbies/interests/strengths in/out of school	60	Greet each student every day, in a way that's comfortable for individual students (hug, fist bump, hand shake etc.)	91	Use students' home language to communicate when possible
43	Acknowledge students who are having a bad day	35	Speak with each student about their personal life	64	Carpet time or class circle	92	Find out who motivates students to succeed in school
46	"Good News" sharing time	37	Acknowledge students' individual strengths			95	Engage students' cultures in all subjects
52	Eye level conversations (kneeling if necessary)	59	Have individual conversations with students			97	Not assuming what students identify with culturally
58	Aware of students' comfort levels in terms of closeness (i.e. not standing close to a particular student if it makes them uncomfortable)	66	Allow students to get to know you, share things about your personal life			98	Teacher shares things about their culture

62	Welcoming body language, open stance	73	Advocate for your students			99	Acknowledge different languages, even within cultures
84	Follow up on conversations with your students	81	Be involved in your student's community			101	Get to know student's culture
94	"Get to Know You Activities" all year, not just the first day of school	83	Get to know students beyond superficial facts, like favorite color			102	Identifying students' family orientation towards school/education (goals, motivations, etc.)
		103	Motivational interview with students to determine intrinsic motivators			105	Engage parents-have them share their child and how they best learn with you
		104	Be aware of communication styles			125	Use personal relationships with students to discuss their future

		127	Let students know you care about them				

Table 16. Eight-Cluster Solution: Clusters 5-8

Cluster 5: Student Expression and Appreciation		**Cluster 6-Neutral, Inclusive Classroom Environment**		**Group 7: Students' Future**		**Cluster 8: Race-Centered Conversations**	
ID	Item	ID	Item	ID	Item	ID	Item
12	Compliment circle at the end of the day	14	"Cold calling" on students by drawing a name from stick, card, or list to answer a question to hold accountability for all students	65	Help students accomplish their goals	72	Take risks in classroom conversations (discuss things that may make you, or other students uncomfortable)
31	Incorporate activities that students are interested in	15	Make positive eye contact	71	Allow students to discuss issues or current events that are relevant to their culture	109	Address race when it comes up
38	Telling students that you know they can be successful and require them to get tutoring	19	Arrange student in a way that each student can be seen and heard (open seating)	79	Align material (curriculum) to the lives of your students	111	Teach students to challenge stereotypes
40	Actively seek chapter books for read alouds with characters of color	23	Allow wait time	80	Never validate stereotypes	112	Remain neutral during conversations about race
45	Student of the day/week	30	Eye contact with students while teaching	85	Texts and readings which relate to current events and students' experiences	113	Be engaged in conversations about race

47	All About Me boards or projects	48	Allow students to help create class agreements or "rules"	96	Having a cultural night or activity where students bring things that represent their culture	114	Intentionally integrate issues of race in the curriculum/lesson plan
49	Student choice embedded in classroom procedures and assignments	50	Teacher circulates the classroom at all times	100	Acknowledging that race is not equivalent to culture	116	Be knowledgeable about racial issues
68	Use students' interests to teach concepts	51	Creates a comfortable classroom environment	115	Acknowledge achievements of people of color	118	Address contemporary social situations where race is involved
75	Allow students to lead conversations	53	No front or back of the classroom	117	Empower students, especially those of Color	119	Discuss the racial achievement gap within your own classroom and within the school as a whole
76	Teach students how to have civil conversations	54	Move students around the classroom, be aware of seating (rotate seating chart)	123	Class shared readings and texts from a wide range of cultures and perspectives	121	Do not ask students of any race to speak for their entire race
77	If a teachable moment occurs, take advantage of it	55	Move toward students for positive behavior	124	Inspiration Wall	122	Talk with students individually about their racial experience in your class/school
78	Plan for conversation	56	Open classroom, no barrier between teacher and class	126	Link content to future careers	129	Show students that there are successful minorities

86	A wide variety of choice reading books	57	Aware of how often you speak to students (not targeting certain students)	128	Help students understand that there are many avenues to success		
87	Student choice on projects or assignment topics	61	Balance the tone of conversations	130	Follow up with students about future careers		
88	Student created bulletin boards	63	All classroom materials easily accessible for all students	131	Encourage students to achieve their aspirations		
90	Students as teachers	108	Clearly delineated classroom procedures	132	Show students role models from their own cultural and racial background		
93	Expose multiple perspectives of historical and present events			133	Talk with students about finding mentors and allies who will help them navigate their future paths		
106	Wide range of books in classroom library			134	Introduce students to summer learning opportunities connected to their future paths		
107	Activities which address different learning modalities			135	Help students apply for college or other opportunities		
110	Discuss multiple perspectives (historical and current events)			136	Discuss future pathways with parents so that they understand their child's potential		

120	Assign groups that do not leave students of color isolated			137	Help families navigate things like college applications or other special opportunities.		
138	Connect curricular concepts to those who helped developed them			139	Create opportunities to volunteer or complete community service as a part of curriculum		
141	Have students complete inquiry projects several times			140	Have experts, authors, etc. Skype into classroom		

Statement Ratings: Implementation vs. Importance

After grouping the statements, participants were asked to rank each statement on two scales, Importance and Implementation. Both scales ranged from 1 to 4, where 1= easy to implement on a daily basis/not important for student success and 4=hard to implement on a daily/important for student success. Go-zone displays were then created so that points represented each statement and were plotted to represent the average implementation (x-axis) and importance (y-axis) rating. The 2-dimensional plane was divided into four quadrants according to the overall average rating for level of implementation and importance. Table 17 presents the average of each scale, by cluster.

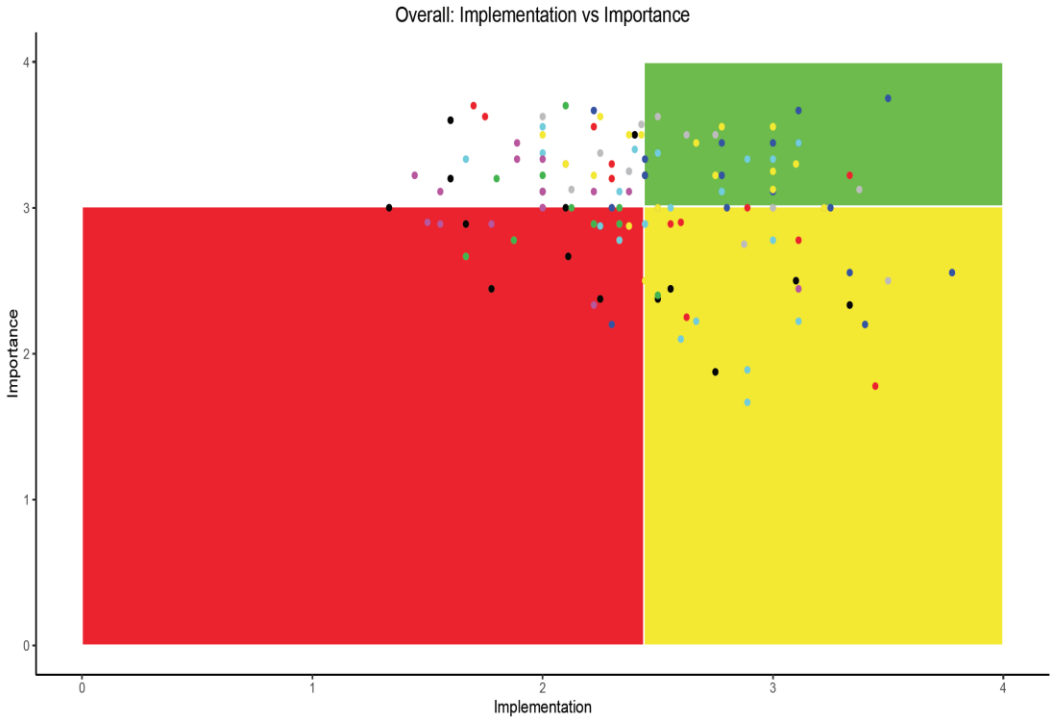
Table 17. Average Rating by Cluster

Cluster	Implementation	Importance
1: Visibility in Classroom	2.22	2.79
2: Visibility Outside of Classroom	2.35	2.95
3: Student-Specific Acknowledgements	2.07	2.93
4: Engage Students' Culture and Family	2.91	3.1
5: Student Expression and Appreciation	2.57	2.91
6: Neutral, Inclusive Classroom Environment	1.97	3.01
7: Students' Future	2.79	3.13
8: Race-Centered Conversations	2.65	3.25
Average of Clusters	2.44	3.01

Table 17 shows that overall, strategies were deemed as slightly difficult to implement on a daily basis, and moderately important for student success. In terms of cluster trends, Cluster 6 (Neutral, Inclusive Classroom Environment) appears to be the easiest to implement on a daily basis and Cluster 8 (Race-Centered Conversations) appears to be the most important for student success. Alternatively, Cluster 7 (Students'

Future) is the most difficult to implement on a daily basis and Cluster 1 (Visibility in Classroom) is the least important for student success.

Figure 9 presents a go-zone map that plots each of the 141 stategies. Figure 9 shows that overall, fewer strategies fell within Quadrant III (red), indicating that there are not many strategies that are easy to implement and unimportant for student success. It appears as though the highest number of statements fell into Quadrant II (white), indicating that most strategies are easy to implement, and important for student success.



Cluster Name	Color	Cluster Name	Color
Visibility in Classroom		Student Expression and Appreciation	
Visibility Outside of Classroom		Neutral, Inclusive Classroom	
Student Specific Acknowledgements		Students' Future	

Figure 9. Go-zone Map: All Statements

Go-zone maps for each of the eight clusters are presented below. The same trend that arises in Figure 9 is evident in each of the eight clusters; most items are in Quadrant II (easy to implement, important for student success) and Quadrant IV (hard to implement, not as important for student success.

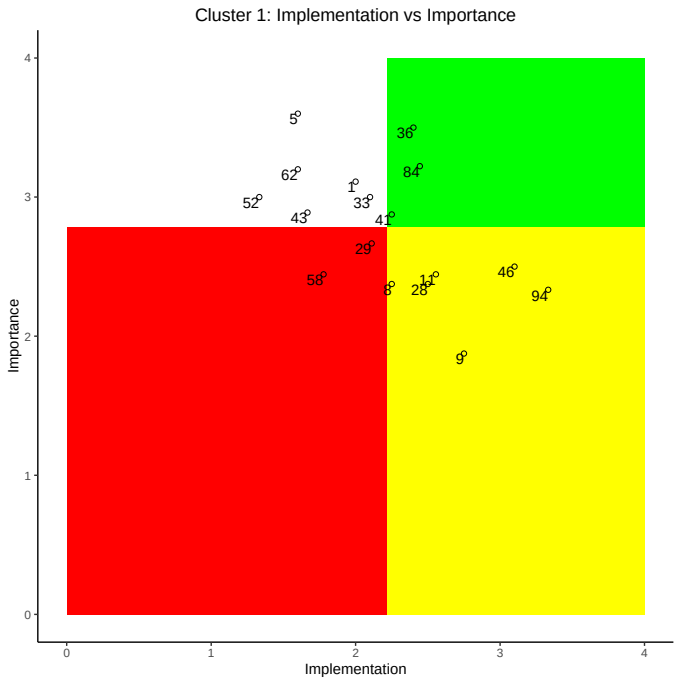


Figure 10. Go-zone Map: Cluster 1

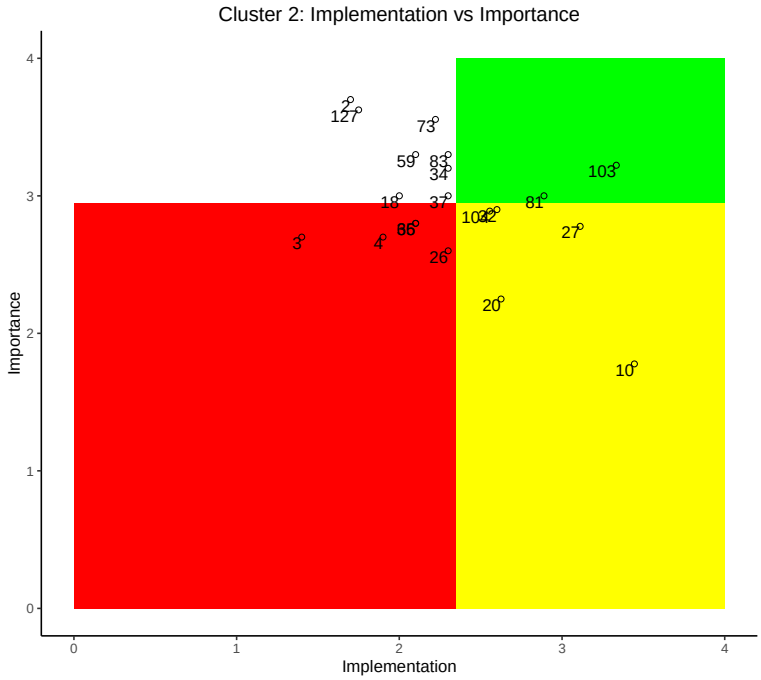


Figure 11. Go-zone Map: Cluster 2

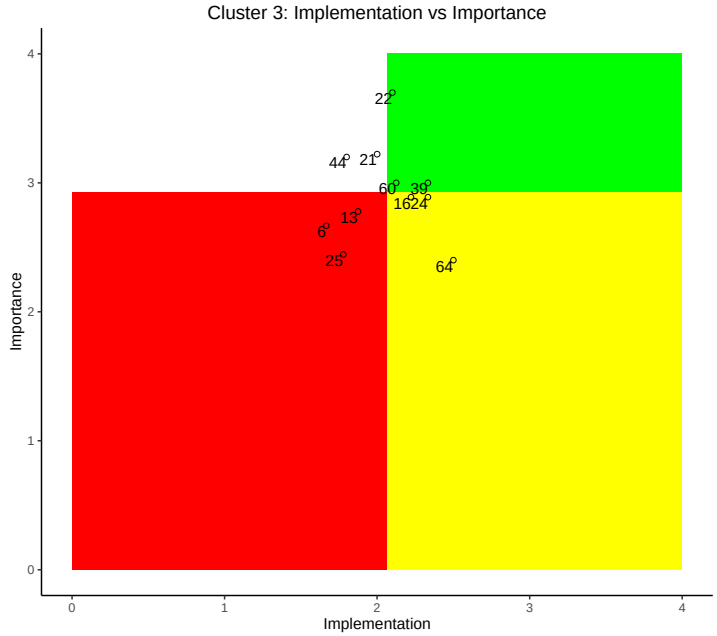


Figure 12. Go-zone Map: Cluster3

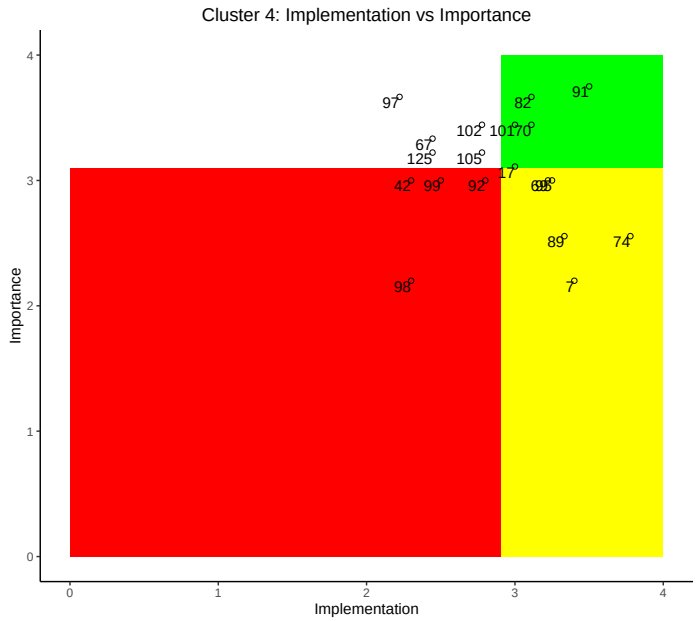


Figure 13. Go-zone Map: Cluster 4

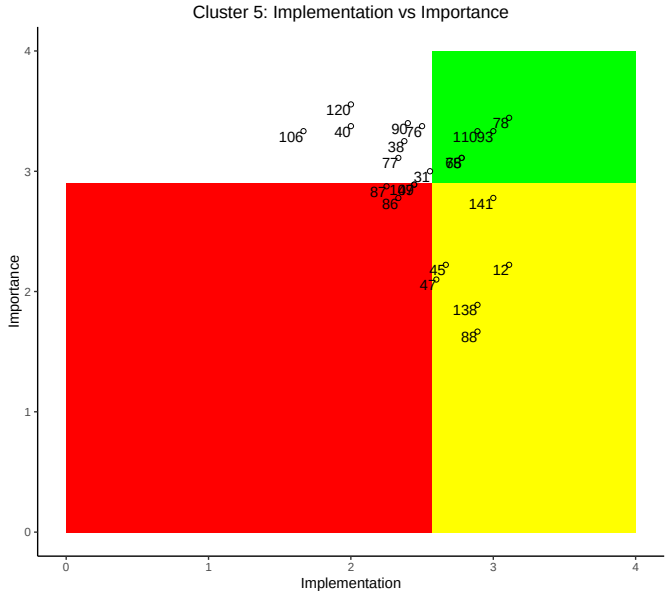


Figure 14. Go-zone Map: Cluster 5

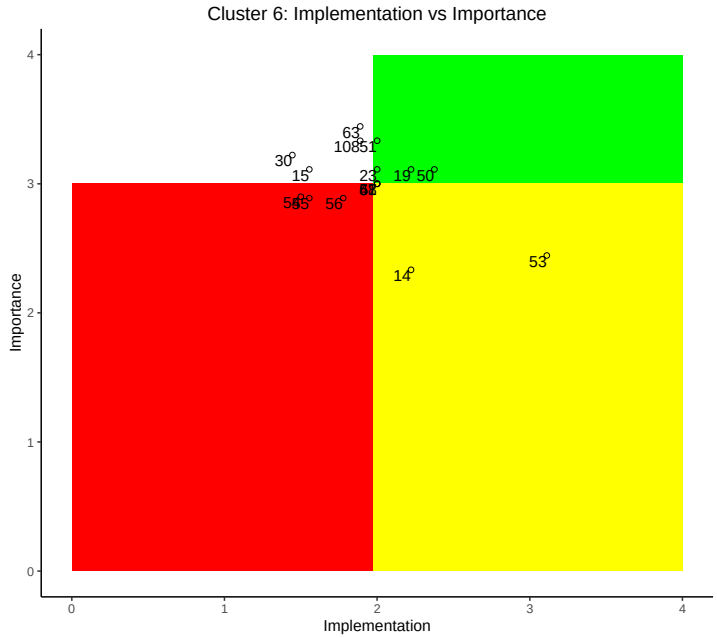


Figure 15. Go-zone Map: Cluster 6

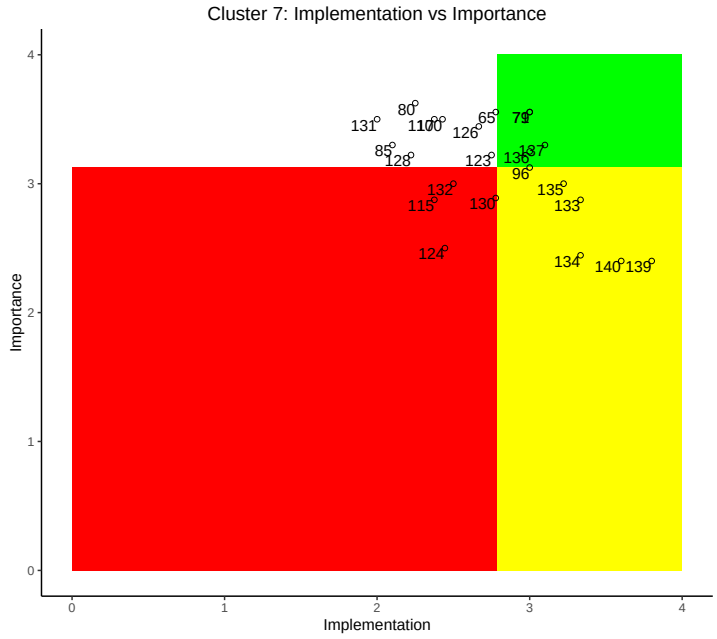


Figure 16. Go-zone Map: Cluster 7

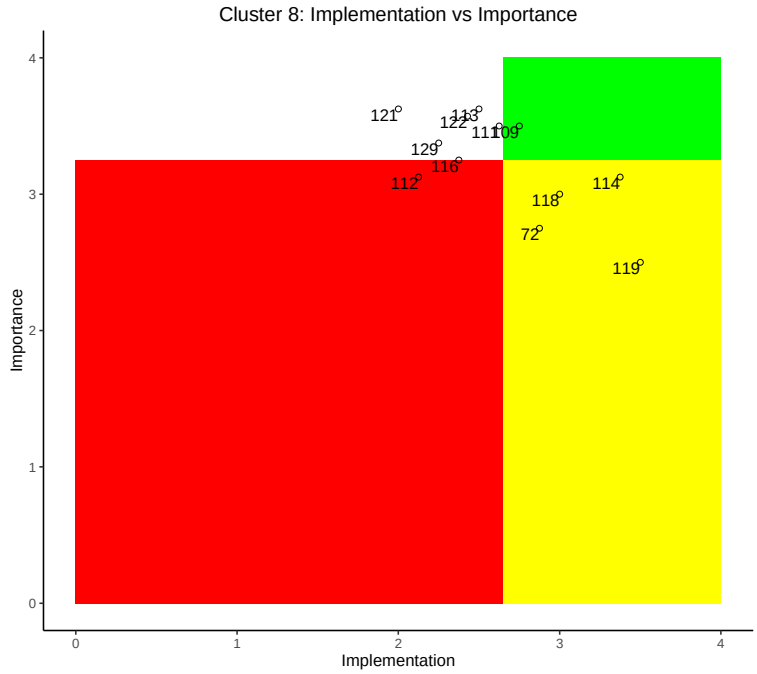


Figure 17. Go-zone Map: Cluster 8

Assessment Engineering: Rubric Development

The quadrants in which strategies fell, by cluster, were used to develop a draft rubric. The color-coding used in the go-zone maps translated into stages of implementation where green represents Sustaining (the highest level of implementation; hard to implement and very important for student success), white represents Transformation, yellow represents Adaptation, and red represents Adoption (lowest level of implementation; easy to implement, not as important for student success). This categorization for the rubric is based upon the idea that a more competent instructor would readily implement difficult instructional strategies, opposed to those that are easier (i.e., "low hanging fruit"); whereas, less competent instructors would primarily

implement easier, surface level instructional strategies that are not identified as being extremely important for student success.

Each of the strategies identified by quadrant and cluster were coded (summarized) similar to the development of construct and task model maps (maps that demonstrate the number and types of items along a continuum) in an Assessment Engineering framework. Figure 18 demonstrates how the phases of each cluster are presented as construct/task model maps and Figures 19-26 present task model maps for each of the resulting eight clusters from the concept mapping activity.

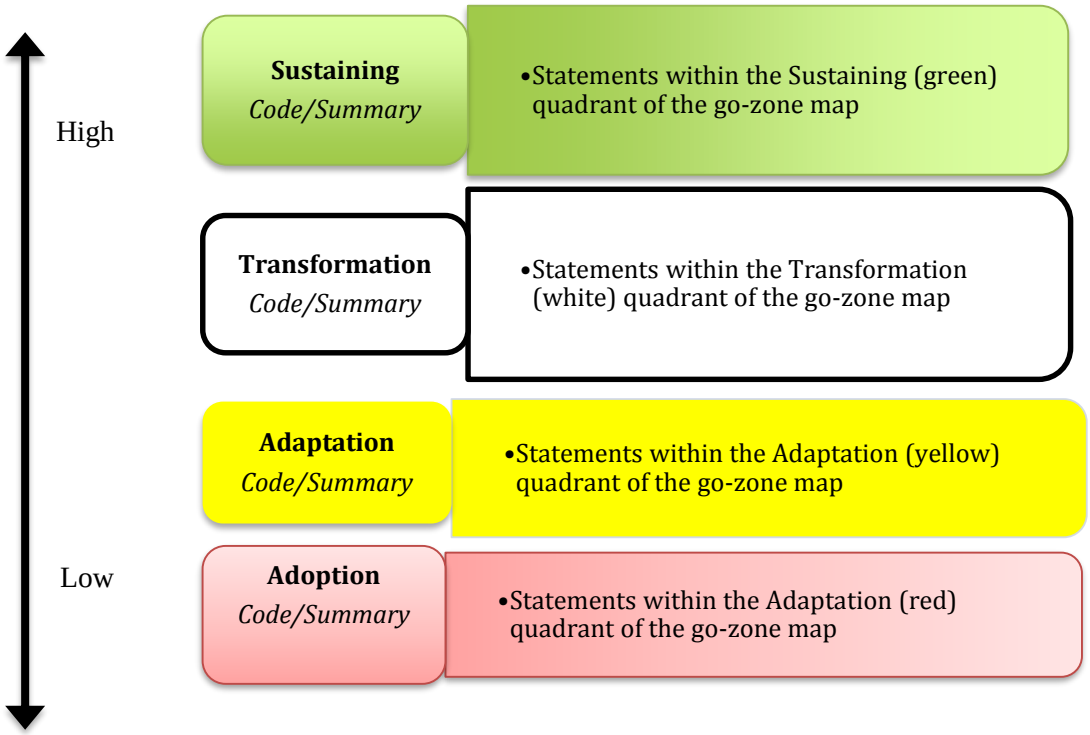


Figure 18. Demonstration of Task Model Map

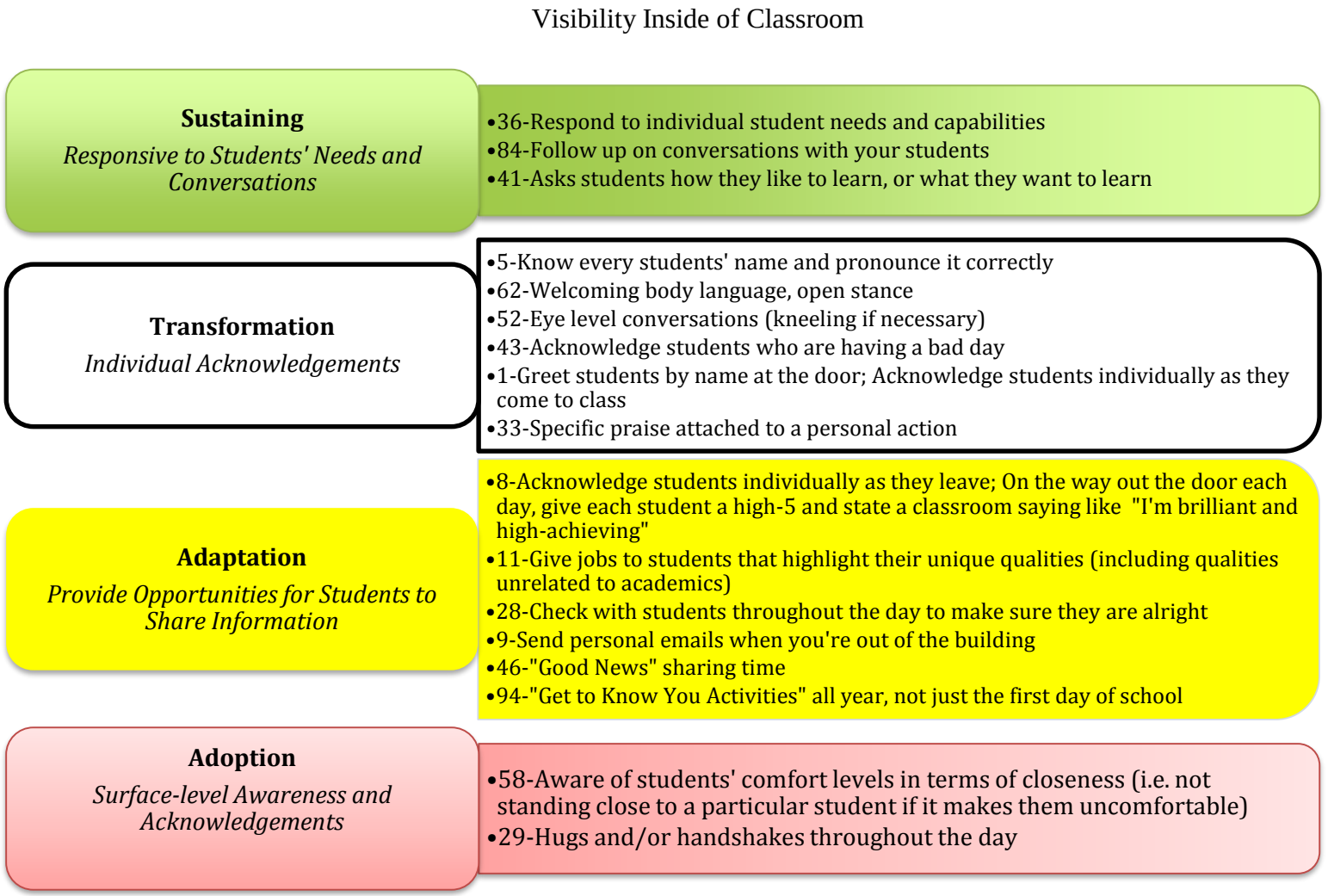


Figure 19. Task Model Map: Cluster 1

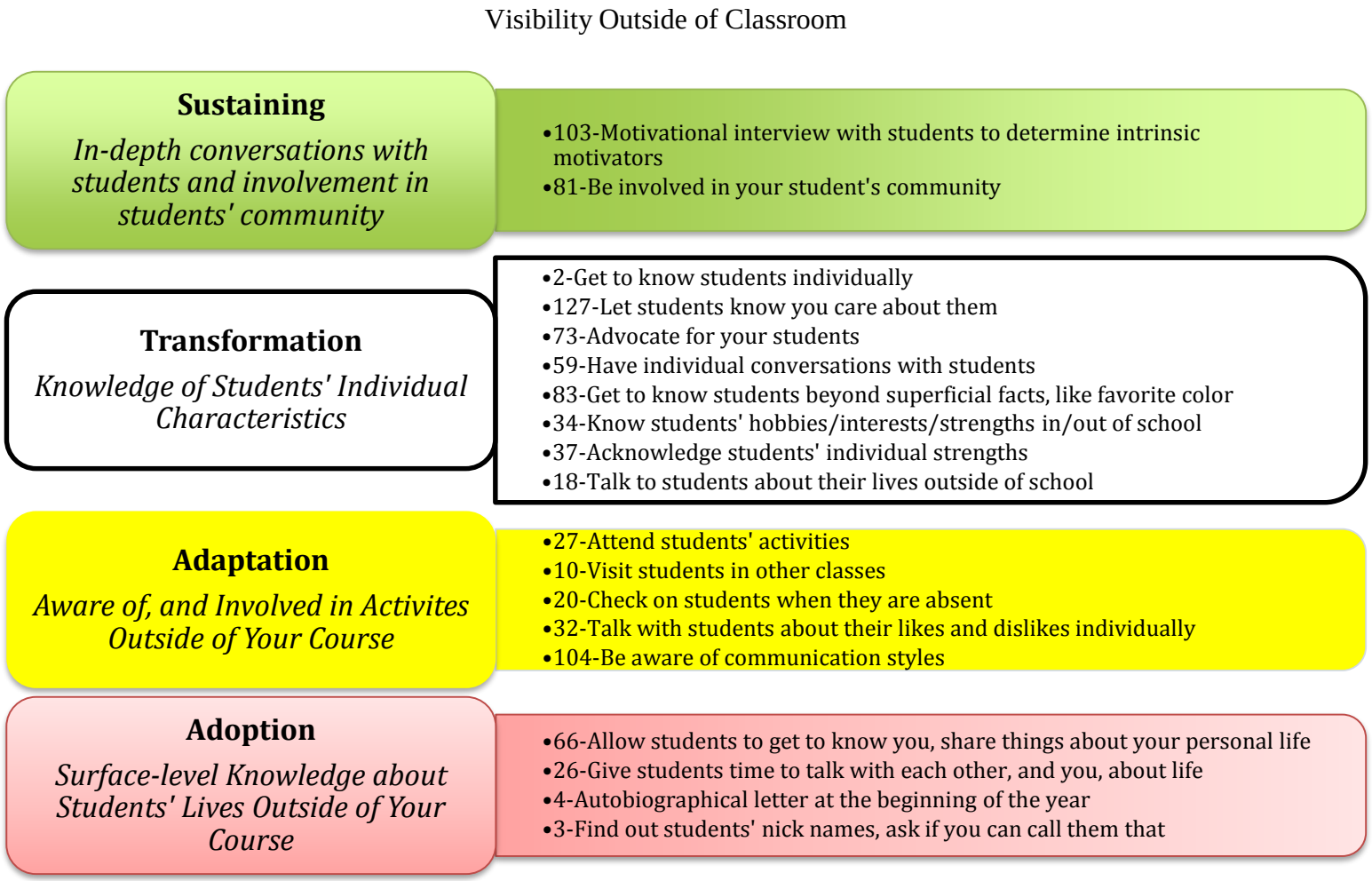


Figure 20. Task Model Map: Cluster 2

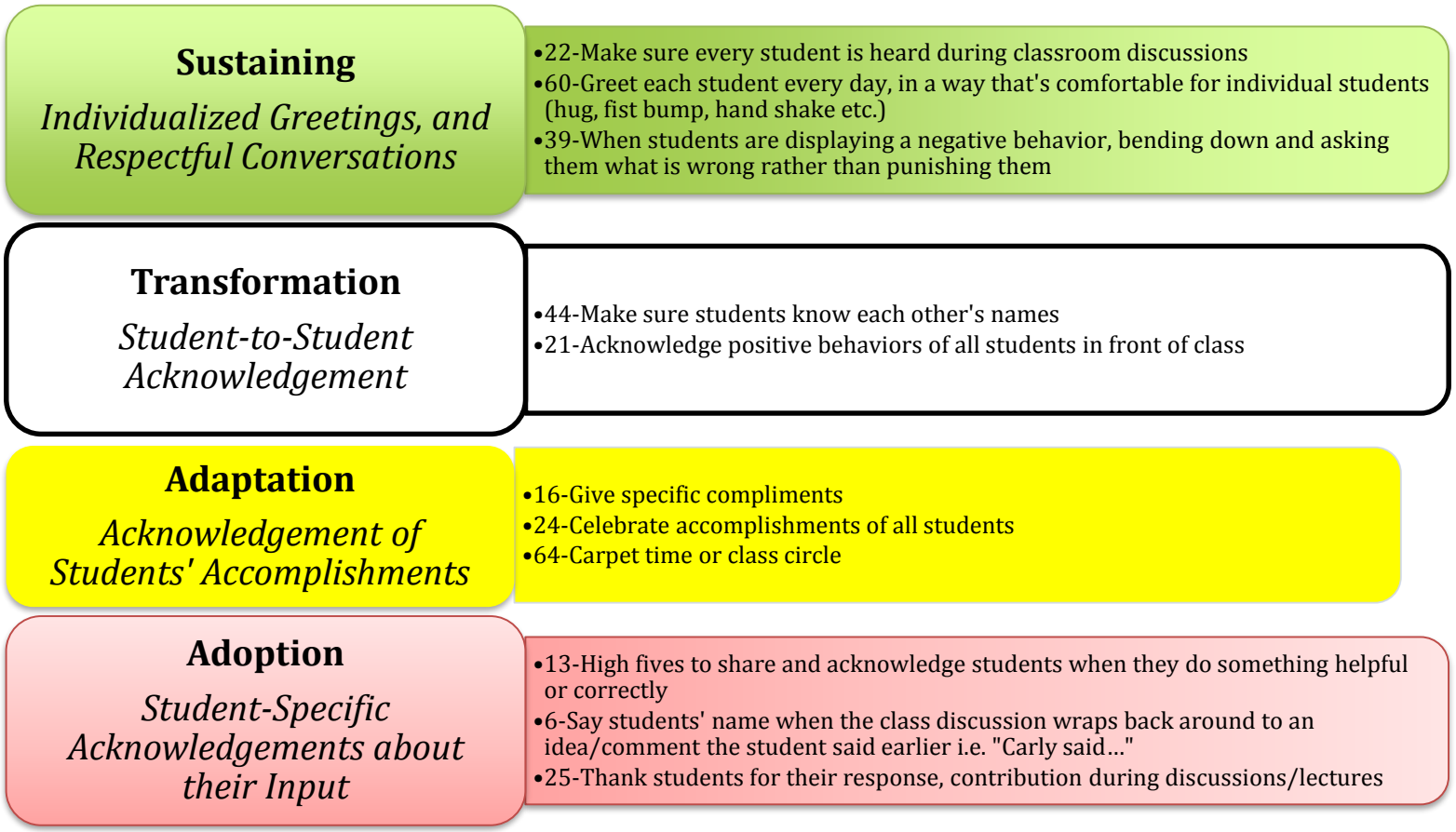


Figure 21. Task Model Map: Cluster 3

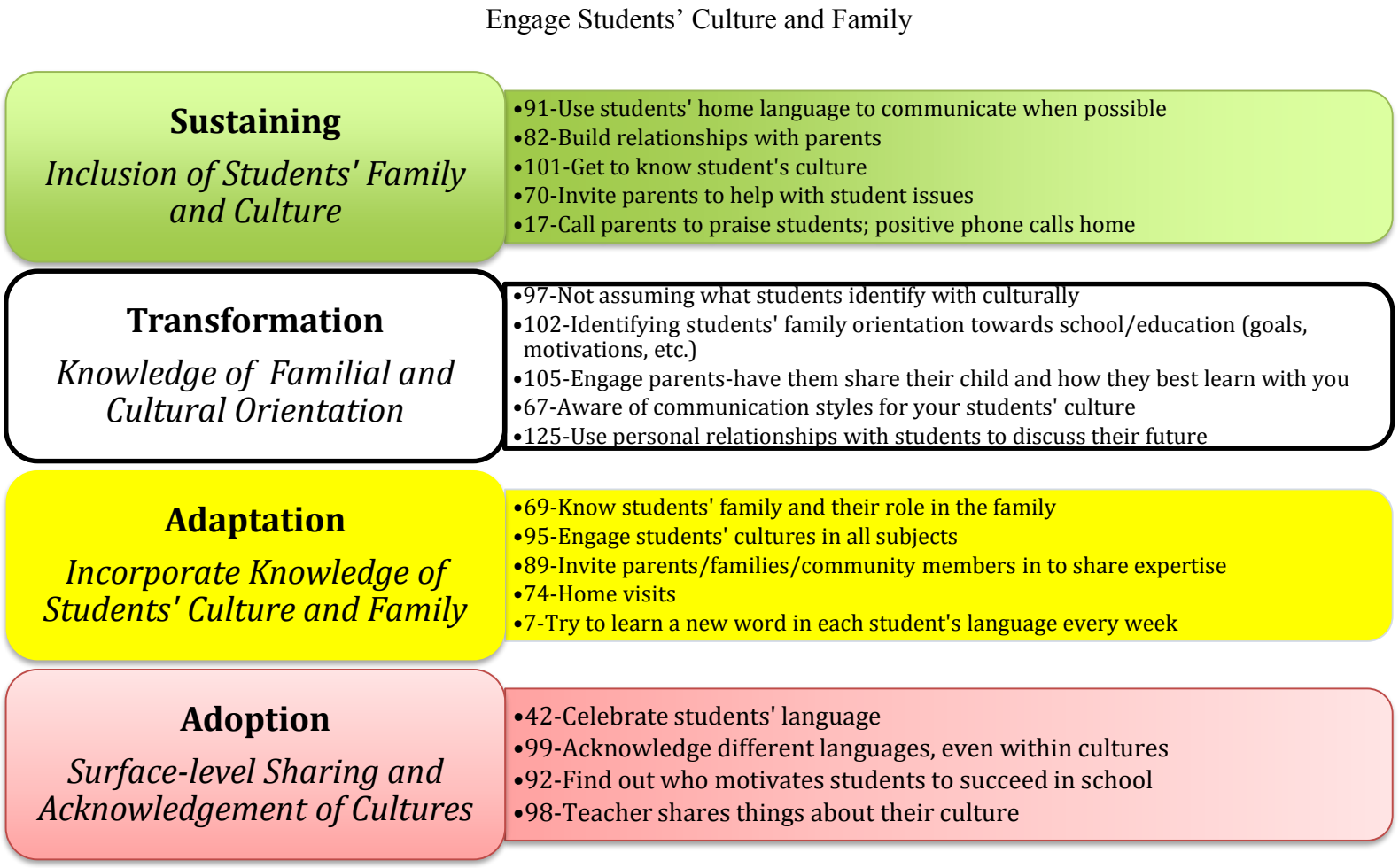


Figure 22. Task Model Map: Cluster 4

Student Expression and Appreciation

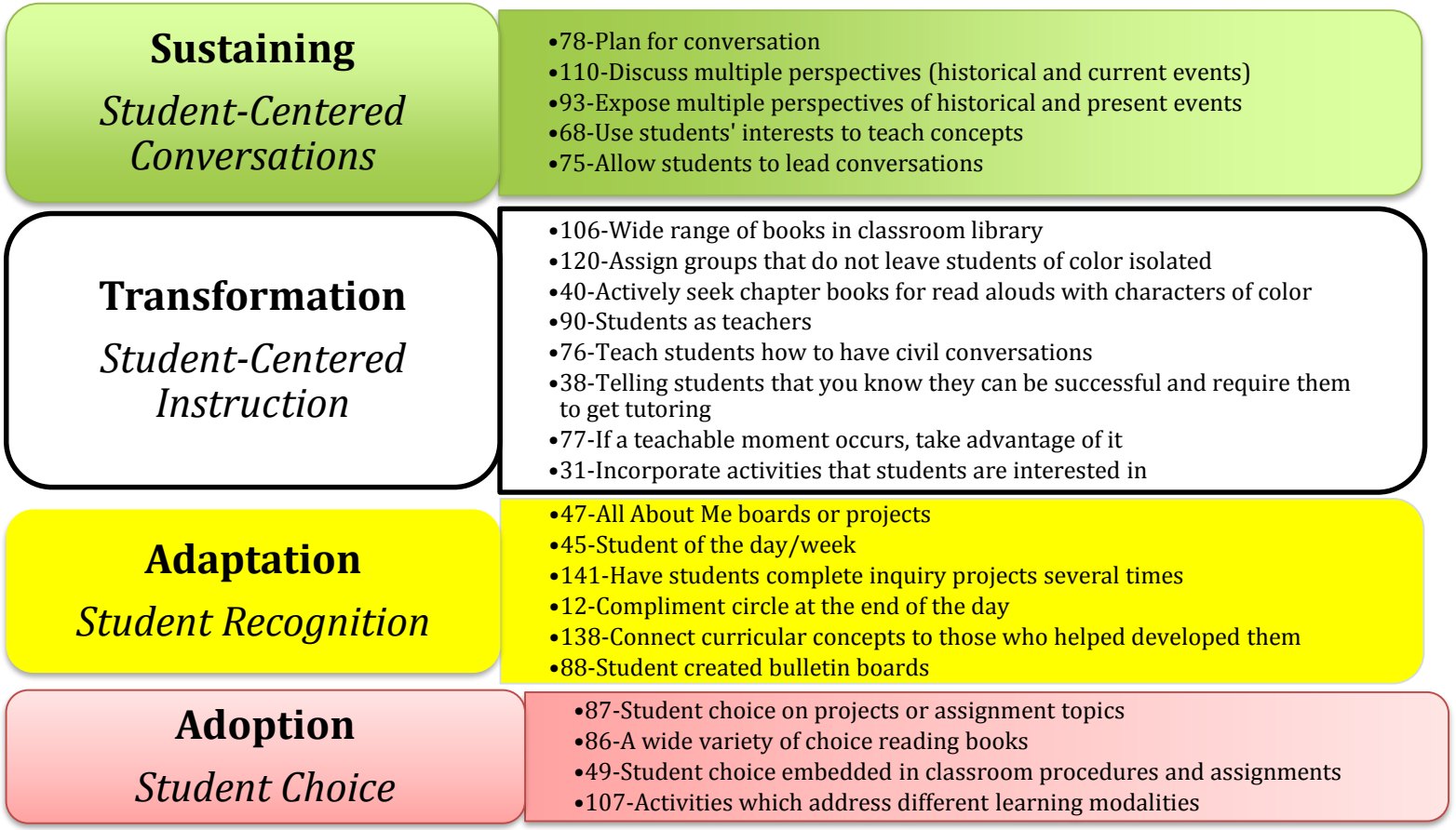


Figure 23. Task Model Map: Cluster 5

Neutral, Inclusive Classroom Environment

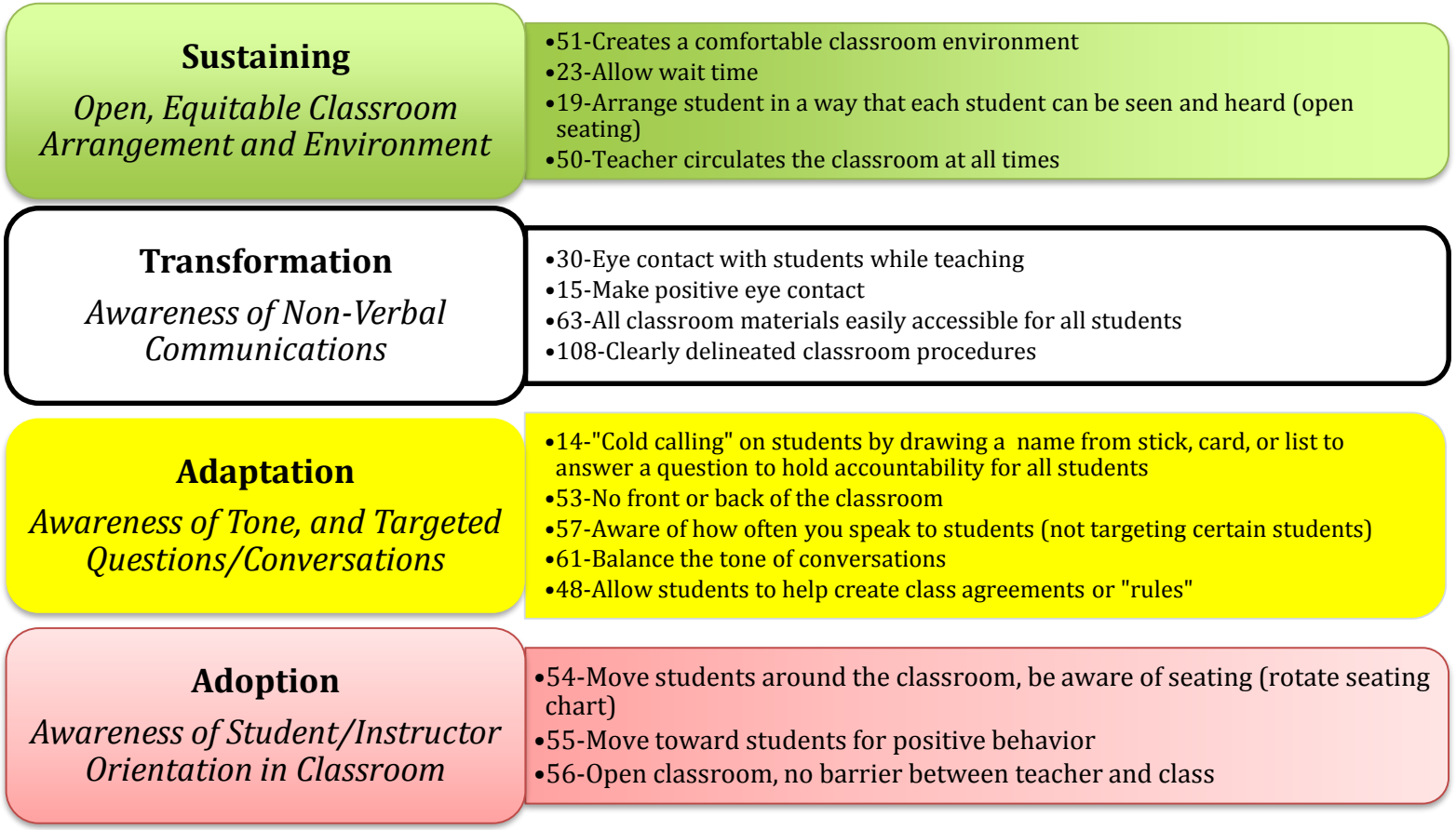


Figure 24. Task Model Map: Cluster 6

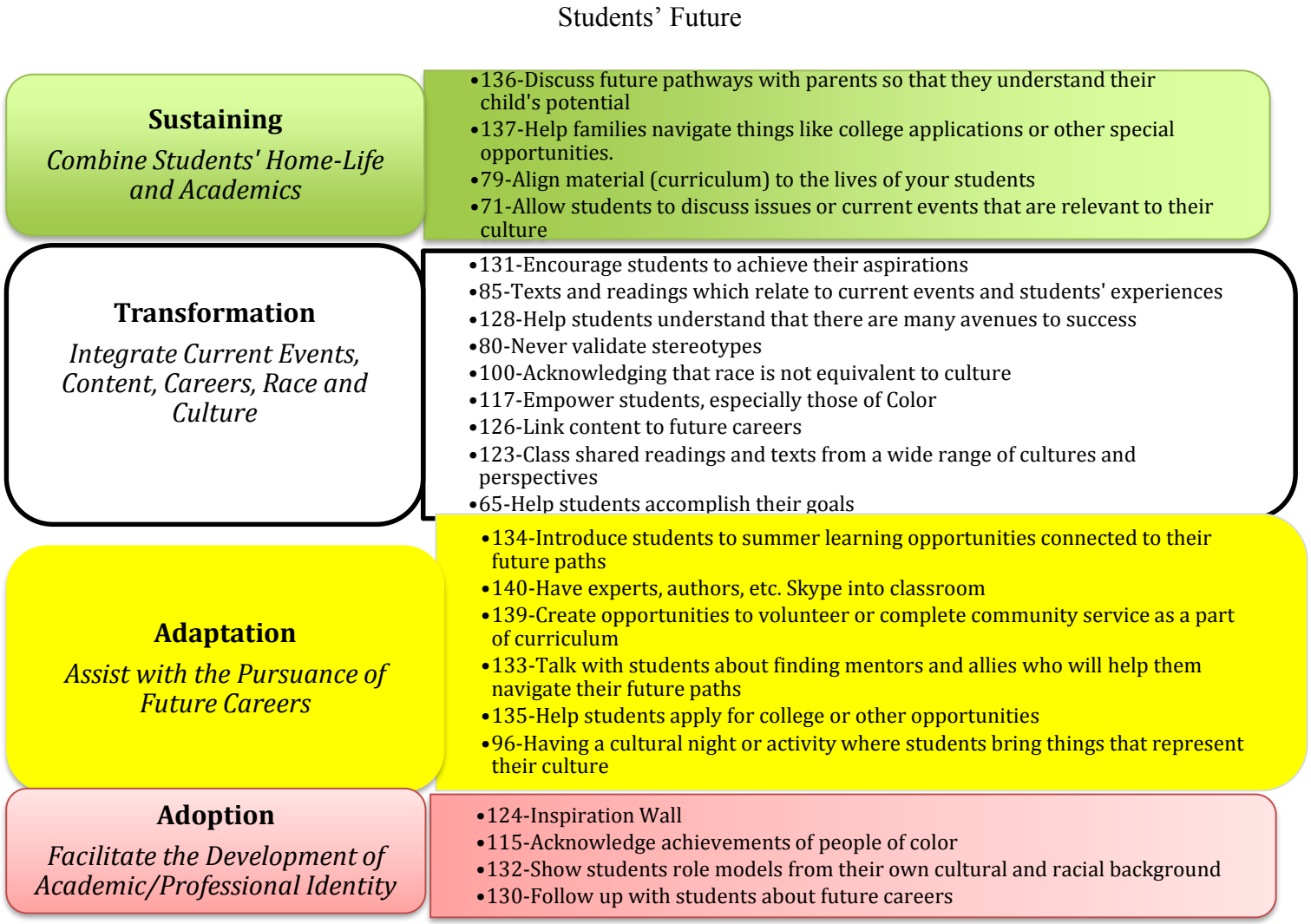


Figure 25. Task Model Map: Cluster 7

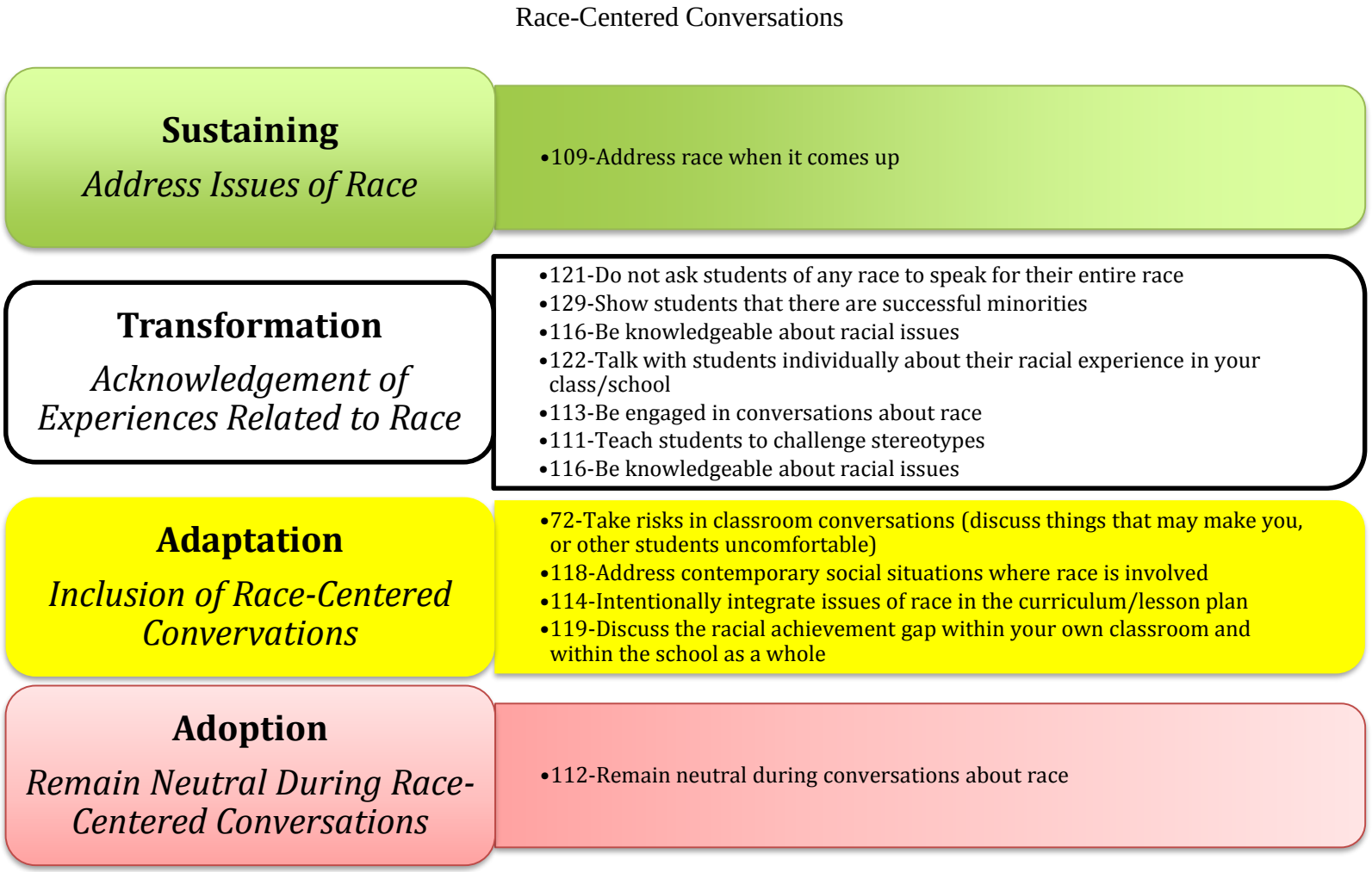


Figure 26. Task Model Map: Cluster

CHAPTER V

DISCUSSION

The purpose of this study was to explore the utility of concept mapping for investigating the validity argument of Students' Six's categorization of culturally relevant teaching strategies, and the use of Assessment Engineering in conjunction with concept mapping results for rubric development. This chapter begins with an overview of the study. Next, a summary of the findings are presented, by research question. Lastly, limitations and recommendations are discussed.

Overview of Study

Educating diverse students requires attention toward the interaction between culture, and instructional strategies (Gay, 2010). Given such, specialized professional development programs work with in-service educators on instructional strategies that are not only beneficial for all students, but specifically beneficial for non-White students who have historically performed at a lower level than their White counterparts (Rychly & Graves, 2012). Culturally responsive/relevant instruction has gained popularity in recent years as a method for increasing student achievement; however, there is little consensus about how culturally relevant pedagogy is implemented in classrooms (Young, 2010).

Students' Six is a professional development program that aims to help in-service teachers align their instructional strategies with culturally relevant teaching by engaging in reflection, and conversations with traditionally marginalized students about their

experiences with the intersections of culture, race, and education. Students' Six is presented as six distinct concepts that are grounded in culturally relevant teaching, but there is not empirical evidence to support the categorization of Students' Six's instructional strategies. In addition to the lack of empirical evidence, there have been recent demands for a tool that can be used to assess the implementation of Student's Six's definition of culturally relevant instruction.

Concept mapping was the primary methodology used in this study. Concept mapping is a mixed methods research design that describes processes for systematically representing ideas in the form of graphs, pictures, and maps (Kane, 2006). The results of the concept mapping analysis were used to develop a draft rubric that could be used to define and assess culturally relevant instruction, per Students' Six.

Summary of Findings

Research Question #1: What are the specific instructional strategies associated with culturally relevant pedagogy, per Students' Six participants? In what ways do these instructional strategies overlap?

There were a total of five statements that overlapped Students' Six concepts. All of the overlapping strategies were initially presented in Week 1 (Visibility), suggesting that Visibility transcends a few of the original concepts established by Students' Six. 4 out of 5 statements overlapped between weeks that Visibility and Proximity were discussed, implying that Visibility and Proximity are potentially closely related concepts in its current presentation of these topics. The fifth overlapping instructional strategy,

Attend students' activities, overlapped between Weeks 1 (Visibility) and 3 (Connecting to Students' Lives).

Table 18 presents the final categorization of overlapping strategies. The results of the concept mapping analysis revealed that 3 out of the 4 statements that overlapped Visibility and Proximity were frequently sorted together, resulting in a cluster that included these three strategies (Visibility in Classroom). 4 out of 5 of the overlapping strategies were categorized as a form of Visibility. Concept mapping analyses revealed that Visibility could be disaggregated into two groups: Visibility in Classroom and Visibility Outside of Classroom.

Table 18. Categorization of Overlapping Strategies

Statement	ID	Week 1: Visibility	Week 2: Proximity	Week 3: Connecting to Students' Lives	Categorization from Concept Mapping Analysis
Positive eye contact	15	X	X		Neutral, Inclusive Classroom Environment
Eye level conversations	52	X	X		Visibility in Classroom
Greet students at door	1	X	X		Visibility in Classroom
Hugs and/or handshakes throughout the day	29	X	X		Visibility in Classroom
Attend students' activities	27	X		X	Visibility Outside of Classroom

The benefit of clarifying the categorization of overlapping strategies is two-fold. First, clarity amongst the categories of seemingly transcending strategies will allow Students' Six program administrators the ability structure the delivery of Students' Six in a way in which strategies can be presented as isolated categories, which supports the underlying assumption of distinctiveness of concepts. Second, in the development of a rubric designed to assess the implementation of culturally relevant teaching strategies as defined by Students' Six, it is imperative that the instrument is first designed to support the inferences that will be made about scores. The inferences that will innately be made about teachers' level of implementation will be associated with concepts/categories. Therefore, when developing the concepts that will be used to construct this rubric, each concept should be composed of mutually exclusive instructional strategies.

Research Question #2: How do Students' Six participants collectively categorize instructional strategies that are indicative of culturally relevant pedagogy, per Students' Six Framework?

A three and eight-cluster solution were retained to represent the 141 statements generated to define culturally relevant instruction, per Students' Six framework. The results indicate that there are three broad concepts underlying Students' Six: Cultivate Relationships, Instructional Strategies/Classroom Environment, and Incorporating Students' Culture and Experiences. The three broad concepts can be further defined by eight concepts, namely: Visibility in the Classroom, Visibility Outside of the Classroom, Student Specific Acknowledgements, Engage Students' Culture and Family, Student Expression and Appreciation, Neutral, Inclusive Environment, Students' Future, and

Race-Centered Conversations. Figure 27 shows the relationship between the three-cluster solution, eight-cluster solution and Students' Six original six concepts, respectively.

Figure 27 suggests that Visibility in its original form is associated with four individual clusters, all grounded by *Cultivate Individual Relationships* and *Instructional Strategies/Classroom Environment*. The implications associated with the depth of Visibility in the way in which it was original presented by Students' Six, is that inferences made about this concept may not have been warranted in the way that the concept was originally defined. Initially, Visibility was defined as *Making every student feel acknowledged and included in the classroom*; however the results of the concept mapping analysis revealed that Visibility in it's primary orientation included strategies that related to activities performed outside of the classroom. Further, the acknowledgement aspect of Visibility could potentially be defined as an independent concept.

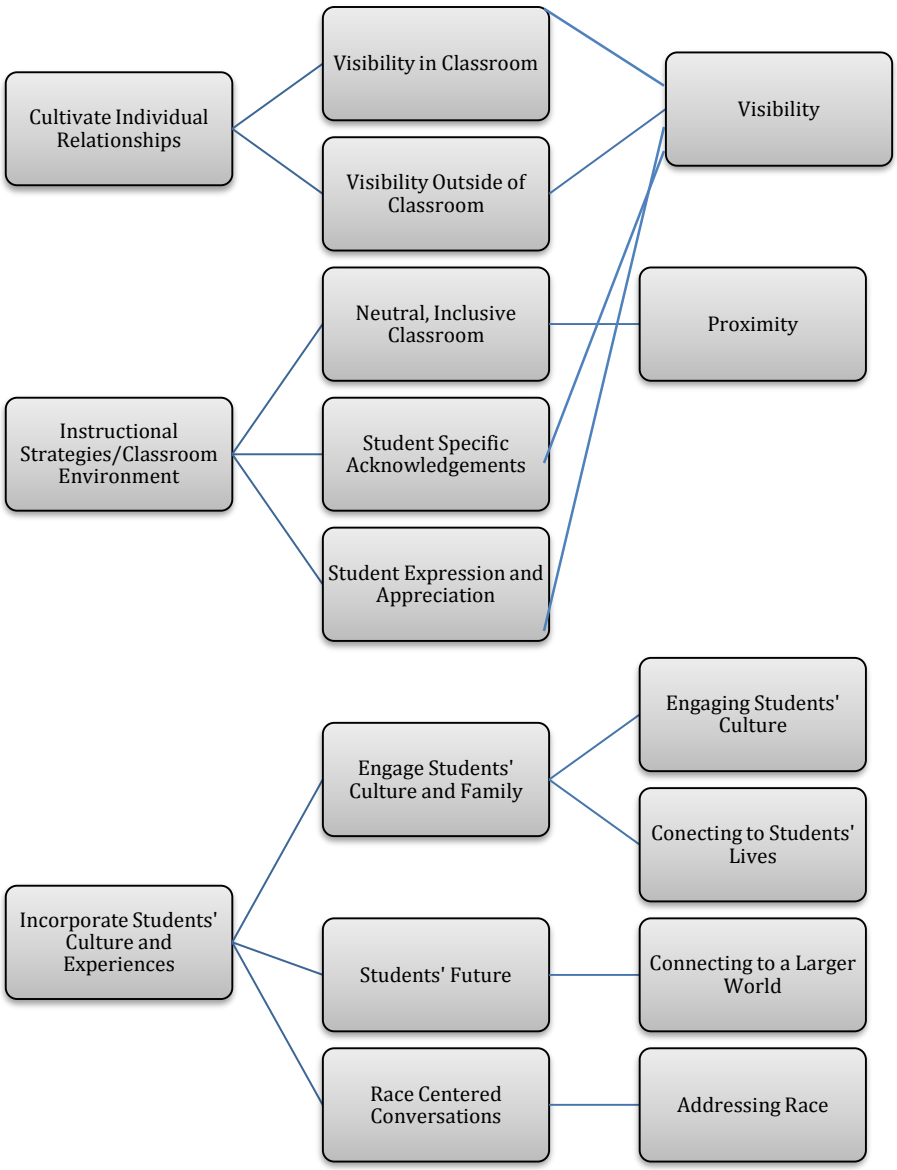


Figure 27. Comparison of Results and Original S6 Concepts

Research Question #3: How can assessment engineering be used to develop a rubric that assesses the implementation and effectiveness of culturally relevant pedagogy, per Students' Six participants' categorization of instructional strategies that are indicative of culturally relevant pedagogy?

The quadrants resulting from go-zone maps translated into four stages of implementation where green represents Sustaining (the highest level of implementation), white represents Transformation, yellow represents Adaptation, and red represents Adoption (lowest level of implementation). Each of the strategies identified by quadrant and cluster were coded (summarized) to develop operational definitions of each level of implementation. Figure 28 presents the draft rubric developed as a result of the concept mapping activity and associated analyses.

Dimension of Culturally Relevant Pedagogy	Sustaining	Transformation	Adaptation	Adoption
Visibility in Classroom	Responsive to students' needs and conversations	Individual acknowledgements	Provide opportunities for students to share information	Surface-level awareness and acknowledgements
Visibility Outside of Classroom	In-depth conversations with students and involvement in students' community	Knowledge of students' individual characteristics	Aware of, and involved in activities outside of your course	Surface-level knowledge about students' lives outside of your course
Student-Specific Acknowledgements	Individualized greetings, and respectful conversations	Student-to-student acknowledgement	Acknowledgement of students' accomplishments	Student-specific acknowledgements about their input
Engage Students' Culture and Family	Inclusion of students' family and culture	Knowledge of familial and cultural orientation	Incorporate knowledge of students' culture and family	Surface-level sharing and acknowledgement of cultures
Student Expression and Appreciation	Student-centered conversations	Student-centered Instruction	Student recognition	Student choice
Neutral, Inclusive Classroom Environment	Open, equitable classroom arrangement and environment	Awareness of non-verbal communications	Awareness of tone, and targeted questions/ conversations	Awareness of student/instructor orientation in classroom
Students' Future	Combine students' home-life and academics	Integrate current event, content, careers, race and culture	Assist with the pursuance of future careers	Facilitate the development of academic/professional identity
Race-Centered Conversations	Address issues of Race	Acknowledgement of experiences related to Race	Inclusion of Race-centered conversations	Remain neutral during Race-centered conversations

Figure 28. Students' Six Draft Rubric

Theoretical Orientation of Results

Research has shown that cultural clashes in the classroom can potentially lead to gaps in academic achievement. This study offers a draft instrument for assessing the extent to which culture is considered, and used as a foundation for instructional pedagogy. Moreover, the results of this study align with facets of Critical Race Theory (CRT) and culturally relevant pedagogy and how they can be used to compliment each other in the classroom.

Brown-Jeffy & Cooper (2012) speak to the relationship between CRT and culturally relevant pedagogy. Most notably, they identify how the two theories compliment each other; CRT provides a theoretical basis for examining structures that contribute to the subordination of traditionally marginalized groups, whereas culturally relevant pedagogy expresses how instructional practices can either reproduce or rebuke systematic structures that contribute to racism. When examining the relationship between CRT and culturally relevant pedagogy, it becomes clear that both theories acknowledge the value of lived experiences; but the two theories differ in that culturally relevant pedagogy does not explicitly problematize race.

The results of this study show that the implementation of culturally relevant pedagogy can be measured by considering the prominent features of both CRT and culturally relevant pedagogy. Identity and achievement, equity and excellence, teaching the whole childe, developmental appropriateness and student-teacher relationships have been identified as themes associated with culturally relevant pedagogy (Brown-Jeffy & Cooper, 2012). Seven of the eight concepts resulting from this study further flushes out

those identified themes as measurable constructs. The eighth concept, Race-Centered Conversations, incorporates the acknowledgement of Race, where Race is not traditionally discussed in the context of culturally relevant pedagogy.

Implications for Practice

During instruction and when discussing the concept of instructional strategies, race is a topic that is traditionally silenced due to its sensitive nature, and is historically omitted as a theme of culturally relevant pedagogy. The permeation and omnipresence of racism is one of the tenets of CRT, and has recently been discussed as a topic that should be considered during the implementation of culturally relevant pedagogy. "Race-Centered Conversations" is explicitly listed in the draft rubric as a dimension of culturally relevant pedagogy. This addition not only reframes the conversation about what culturally relevant pedagogy is, but encourages educators to rethink their role as it relates to Race and racism during the implementation of culturally relevant pedagogy.

Further, the results of this study provide a basis for defining culturally relevant pedagogy in the context of a rubric. This method of assessment is beneficial because it addresses two of the primary gaps in the literature: how to implement culturally relevant pedagogy, and how to measure the implementation of culturally relevant pedagogy. A rubric provides a simple, tangible way to define a complex pedagogical theory that is not a checklist.

Checklists can reduce the purpose and power of a pedagogical approach. The draft rubric resulting from this study displays themes along a construct map, which can be used as topics for future discussion or professional development sessions. Further,

because this tool presents themes and not tasks, it makes clear that implementation of culturally relevant pedagogy is a practice that can take on a variety of presentations depending upon the dynamics and interactions within the classroom. Therefore, this measurement tool encourages instructors to understand their practice as it relates to levels of implementation, rather than implement a few tasks that could be minimally indicative of the pedagogical approach.

Limitations

There are three primary limitations that should be noted in this study: the number of statements involved in the statement generation phase, participants' knowledge of Students' Six's categorization of the strategies related to culturally relevant instructions, and the quantitative representation of qualitative data. There were a total of 141 statements generated throughout the course of the Students' Six professional development series. Sorting and ranking such a high number of statements could induce participant fatigue, as this process appeared to be extremely taxing on participants.

Because the purpose of this study was to gain consensus and define culturally relevant instruction per Students' Six, only Students' Six participants were invited to engage in the study. Knowledge and exposure to Students' Six's original categorization of instructional strategies could have potentially confounded participant's judgment about the most appropriate number of categories to represent the instructional strategies. Many participants used names for their piles that were either identical or similar to Students' Six's naming convention.

The draft rubric is based upon the results of the concept mapping analysis and participants' ratings of each statement on two scales. After using quantitatively defined quadrants to develop the subthemes that were used to provide operational definitions for each level of implementation by cluster, it became apparent that some strategies would be better categorized with other quadrants. These results are beneficial for initiating an empirically based conversation about how culturally relevant instruction can be assessed, but the rubric in its current form is not sufficient for use until validation, in which experts will be given the opportunity to review each of the resulting categories and associated strategies.

Future Research

Future research would involve validating the draft instrument developed as a result of this study. Validation would first include consulting with experts about the extensiveness of instructional strategies used to define culturally relevant instruction. Next, this study should be repeated with a different sample of participants (including ethnicity, age, geographic location, etc.) to investigate the consistency of results. An important aspect of investigating the consistency of results by sample is consideration of grade level, as some instructional strategies are catered toward elementary level students and/or are exemplified differently depending on the student population.

Conclusion

This study employed a mixed methods technique to investigate and preliminarily define culturally relevant instruction. Students' Six participants identified a total of 141 instructional strategies that are indicative of culturally relevant instruction. Study results

suggest that Students' Six's original six concepts could potentially be expressed as eight individual concepts grounded by three broad categories. As a result of this study, a draft rubric was developed that could ultimately be used to assess the implementation of culturally relevant instruction after validation of the instrument is completed.

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APPENDIX A

IRB APPROVAL

THE UNIVERSITY of NORTH CAROLINA GREENSBORO

OFFICE OF RESEARCH INTEGRITY
2718 Beverly Cooper Moore and Irene Mitchell Moore Humanities and Research Administration Bldg.
PO Box 26170
Greensboro, NC 27402-6170
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Web site: www.uncg.edu/orc
Federalwide Assurance (FWA) #216

To: Kshawna Askew
Ofc of Research and Econ Dvlpmt
4101 Cox Pl Apt 2E Greensboro NC 27409

From: UNCG IRB

Date: 10/09/2014

RE: Notice of IRB Exemption
Exemption Category: 2.Survey, interview, public observation
Study #: 14-0375
Study Title: Students' Six Evaluation

This submission has been reviewed by the IRB and was determined to be exempt from further review according to the regulatory category cited above under 45 CFR 46.101(b).

Study Description:

The purpose of the study (evaluation) is to provide formative (information that will be used for improvement) feedback for Students' Six (program to be evaluated) administrators, and to gather specific information about Students' Six strategies -which will be used for future rubric development.

Investigator's Responsibilities

Please be aware that any changes to your protocol must be reviewed by the IRB prior to being implemented. Please utilize the most recent and approved version of your consent form/information sheet when enrolling participants. The IRB will maintain records for this study for three years from the date of the original determination of exempt status.

Signed letters, along with stamped copies of consent forms and other recruitment materials will be scanned to you in a separate email. **Stamped consent forms must be used unless the IRB has given you approval to waive this requirement.** Please notify the ORI office immediately if you have an issue with the stamped consents forms.

Please be aware that valid human subjects training and signed statements of confidentiality for all members of research team need to be kept on file with the lead investigator. Please note that you will also need to remain in compliance with the university "Access To and Retention of Research Data" Policy which can be found at http://policy.uncg.edu/research_data/.

CC:
Robert Henson, Ed Research Methodology

APPENDIX B

STATEMENT GENERATION ACTIVITY

Post Session Evaluation Activity: Session 1, Visibility

Please generate short phrases or sentences that describe specific behavioral examples for the *strategy you discussed today-visibility*. These examples may be good or bad behaviors (behaviors of an educator who has, or has not, mastered this strategy). For instance, a good example of visibility may be to greet each student by his/her name. A moderate example of visibility may be to greet each student, but not by their name. A bad example may be to not acknowledge students at all. Please generate as many examples as you can, using the space below, or the back if necessary.

Good Examples: behaviors of an educator who has mastered this strategy.

Moderate Examples: behaviors of an educator who is not doing bad, but could do better with this strategy.

Bad Examples: behaviors of an educator who is not doing well with this strategy.

APPENDIX C

LIST OF VISIBILITY STATEMENTS

Original List of statements	Revised List of Statements	Data Quality Check: Additions
Speaking intentionally to students	Greet students by name at the door; Acknowledge students individually as they come to class	Make sure students know each other's names
high fives-actual or paper to share out or acknowledge what students do that is helpful	Get to know students individually	Student of the day/week
"Cold calling" on students by drawing a name from stick, card, list to answer a question to hold accountability for all student at high level	Find out students' nick names, ask if you can call them that	"Good News" sharing time
Making positive eye contact	Autobiographical letter at the beginning of the year	All About Me boards or projects
Writing specific compliments	Know every students' name and pronounce it correctly	Allow students to help create class agreements or "rules"
calling parents to praise students	Say students name when the class discussion wraps back around to an idea/comment the student said earlier i.e. "Carly said…"	Student choice embedded in classroom procedures and assignments
talk to students about their lives outside of school	Try to learn a new word in each student's language every week	
greeting students at door by name	Acknowledge students individually as they leave; On the way out the door each day, give each student a high-5 and state a classroom saying like "I'm brilliant and high-achieving"	
ensuring all students are called on (cold call)	Send personal emails when you're out of the building	
compliment circle-making sure we are sitting in an arrangement where each student can be seen and heard	Visit students in other classes	
using students' names and highlighting their individuals strengths	Give jobs to students that highlight their unique qualities (including qualities unrelated to academics)	
greeting students by name	Compliment circle at the end of the day	

positive eye contact	High fives to share and acknowledge students when they do something helpful or correctly	
reaching out to parents of all students for positive praise	"Cold calling" on students by drawing a name from stick, card, or list to answer a question to hold accountability for all students	
thanking students for sharing	Make positive eye contact	
positive eye contact	Give specific compliments	
greeting students by name	Call parents to praise students; positive phone calls home	
asking specific questions about student's life-if they are out sick then checking on them or asking them after they return	Talk to students about their lives outside of school	
open seating in classroom	Arrange student in a way that each student can be seen and heard (open seating)	
acknowledge positive behaviors of all students by name in front of class "so and so, I love how focused you are on your hard work	Check on students when they are absent	
greeting all students by name	Acknowledge positive behaviors of all students in front of class	
making sure every student is heard during classroom discussions	Make sure every student is heard during classroom discussions	
calling on all students	Allow wait time	
allowing for wait time	Celebrate accomplishments of all students	
greeting student	Thank students for their response, contribution during discussions/lectures	
acknowledging positive behaviors	Give students time to talk with each other, and you, about life	
celebrating accomplishments of all students	Attend students' activities	
positive looks	Check with students throughout the day to make sure they are alright	
calling on all students	Hugs and/or handshakes throughout the day	
greeting all students	Eye contact with students while teaching	
emailing students when you won't be at school	Incorporate activities that students are interested in	
knowing all your students names by the end of the first week	Talk with students about their likes and dislikes individually	

Thanking students for their response/contribution during discussions/lectures	Specific praise attached to a personal action	
greeting students by name each morning	Know students' hobbies/interests/strengths in/out of school	
calling students by their name and pronouncing it correctly	Speak with each student about their personal life	
morning meeting, share each student contributions	Respond to individual needs and capabilities	
greet students by name each day	Acknowledge students' individual strengths	
make eye contact (positive), get on students' eye level	Telling students that you know they can be successful and require them to get tutoring	
email/note to student when absent	When students are displaying a negative behavior, bending down and asking them what is wrong rather than punishing them	
makes effort to learn names	Actively seek chapter books for read alouds with characters of color	
seating arrangements where students see each other	Asks students how they like to learn, or what they want to learn	
giving students time to talk with each other and you about life	Celebrate students' language	
know pronunciation of name	Acknowledge students who are having a bad day	
knowing all names		
morning meetings to learn info		
email students when gone		
positive eye contact		
greetings outside of classroom		
speak to each student individually everyday		
positive eye contact		
being present at activities with students		
taking time to talk about general life issues with all students		
acknowledging the students as they come and go		
check in with students throughout the day to make sure they are alright		
hugs and handshakes throughout the day		

talking with students and explaining things		
eye contact with kids as teacher is teaching		
having activities of interest with kids		
mention the name of each student during the course of the lesson (call on each student)		
know each students name and how to say it properly		
learning names and correct pronunciation of all students		
greeting students at the door by name		
talk to students about their likes and dislikes individually		
specific praise attached to a personal action		
give students a positive eye look and tell them the positive behavior they are doing		
give positive eye contact to every student everyday		
giving roles to students		
seeing them outside of school		
see students as individuals		
make positive eye contact with all students		
know students hobbies, interests, strengths in/out of school		
knowing details about students' lives and talking to them about them		
posivitive eye contact daily (v: "the look")		
greeting students w/more than "hi" at the door		
seeking to know more about students		
making eye contact (positive eye contact)		
speaking to each student about their personal life		
attending after shool activities		
greeting students by name with positivie eye contact, warm and friendly		
taking interest in students' likes/dislikes, family, etc		
elementary teacher knows names of almost every student in the school (elective teacher)		
great at knowing and responding to individual needs and capabilities		
writing ot to individual student acknowledging their strengths		

naming students (by name) when you reference a conversation earlier in class ("Carly said…")		
telling students that you know they can be successful and requiring them to get tutoring		
actively seeks out chapter books for read aloud with characters of color		
asks student how they like to learn or what they want to learn about		
celebrates students' language		
when student s are displaying a negative behavior, bending down and asking them what is wrong rather than punishing them		
greet students at door (by name, handshake, high five, etc)		
acknowledging students who are having a bad day		
compliment circle at the end of the day		
greeting students at beginning of day		
greet everyone at the door with special greeting		
talking about activities outside of school		
giving jobs to students that highlight their unique qualities (not always academy)		
greeting students at the door with more than just "hi"		
going to see students in other classes		
send personal emails when out of building		
morning meeting greeting/question		
on the way out the door each day, give each student a high-5 and they say "I am brilliant and high-achieving"		
learn new word in each students language every week		
saying students when the class discussion wraps back around to the idea the student said earlier "Carly said.."		
know every student's name in the school and pronounce it correctly		
autobiographical letter at the beginning of the year		
high fives all over smile		
learn their names		
find their nicknames and see if you can call them that		

see the student as the person they are, not just the behaviors they exhibit		
greet by name at door		

APPENDIX D

LIST OF PROXIMITY STATEMENTS

Original List of statements	Revised List of Statements	Data Quality Check: Additions
Confident	Teacher circulates the classroom at all times	All classroom materials easily accessible for all students
move around the classroom	Creates a comfortable classroom environment	Carpet time or class circle
creates a comfortable classroom environment	Eye level conversations (kneeling if necessary)	
uses the entire classroom	No front or back of the classroom	
uses technology to enhance student	Move students around the classroom, be aware of seating (rotate seating chart)	
eye level conversations	Move toward students for positive behavior	
no front or back of classroom	Open classroom, no barrier between teacher and class	
open classroom	Aware of how often you speak to students (not targeting certain students)	
move kids around, balance created	Aware of students' comfort levels in terms of closeness (i.e. not standing close to a particular student if it makes them uncomfortable)	
positive eye contact	Have individual conversations with students	
aware of students' comfort level	Greet each student every day, in a way that's comfortable for them (hug, fist bump, hand shake etc.)	
seating awareness	Balance the tone of conversations	
spacing	Welcoming body language, open stance	
hugging		
walking around the room		
eye contact		
knowing how often you speak to each student		
crouching in front of student		

eye contact		
talk to kids individually		
standing at the door greeting students		
open stance and standing to the side to engage student		
not targeting kids		
get on kids level		
eye contact		
giving space		
giving kids choices like hug, fist bump, hand shake, etc		
knowing boundaries		
moving in/out of groups		
no barriers between teacher and classroom		
move toward students for positive behavior		
balance the tone of conversations		

APPENDIX E

LIST OF CONNECTING TO STUDENTS' LIVES STATEMENTS

Original List of statements	Revised List of Statements	Data Quality Check: Additions
Current events that affect minorities	Help students accomplish their goals	Texts and readings which relate to current events and students' experiences
making relevant examples for lessons	Allow students to get to know you, share things about your personal life	A wide variety of choice reading books
taking risks in classroom conversations	Aware of communication styles for your students' culture	Student choice on projects or assignment topics
advocating for your students	Use students' interests to teach concepts	Student created bulletin boards
allowing your students to get to know you	Know student's family and their role in the family	Invite parents/families/community members in to share expertise
home visits	Invite parents to help with student issues	Students as teachers
let students lead the conversation and facilitate as needed	Allow students to discuss issues or current events that are relevant to their culture	
teach student how to have civil conversations	Take risks in classroom conversations (discuss things that may make you, or other students uncomfortable)	
talk about current events	Advocate for your students	
plan for conversation leave time	Home visits	
material that relates to their lives	Allow students to lead conversations	
sharing your personal life	Teach students how to have civil conversations	
validating what students are going through (current events)	If a teachable moment occurs, take advantage of it	
connecting with families	Plan for conversation	
come to events	Align material (curriculum) to the lives of your students	
know who your students are	Never validate stereotypes	

helping students accomplish their goals	Be involved in your student's community	
let students get to know you as well	Build relationships with parents	
communication styles	Get to know students beyond superficial facts, like favorite color	
using students names in problems when relevant	Follow up on conversations with your students	
using students interest to teach a concept		
don't be stereotypical when using examples		
knowing students families and their role in the family		
ask parents to help you with students' problems, how to handle them		

ENGAGING STUDENTS' CULTURE STATEMENTS

Original List of statements	Revised List of Statements	Data Quality Check: Additions
ask what culture you identify with	Use students' home language to communicate when possible	Identifying students' family orientation towards school/education (goals, motivations, etc.)
continue get to know you activities	Find out who motivates students to succeed in school	Motivational interview with students to determine intrinsic motivators
engage cultures throughout subject areas	Expose multiple perspectives of historical and present events	Be aware of communication styles
cultural night each quarter specific to each class	"Get to Know You Activities" all year, not just the first day of school	Engage parents-have them share their child and how they best learn with you
students interview one another and share their info with the class	Engage students' cultures in all subjects	Wide range of books in classroom library
get to know students individual culture	Having a cultural night or activity where students bring things that represent their culture	Activities which address different learning modalities
teachers share their culture	Not assuming what students identify with culturally	Clearly delineated classroom procedures
ask students who they talk to the most about school	Teacher shares things about their culture	

sharing languages within cultures	Acknowledge different languages, even within cultures	
know the difference between race and culture	Acknowledging that race is not equivalent to culture	
use students' home language	Get to know student's culture	

APPENDIX F

LIST OF ADDRESSING RACE STATEMENTS

Original List of statements	Revised List of Statements	Data Quality Check: Additions
addressing race when it comes up	Address race when it comes up	Address contemporary social situations where race is involved
bringing multiple perspectives	Discuss multiple perspectives (historical and current events)	Discuss the racial achievement gap within your own classroom and within the school as a whole
teaching students to challenge stereotypes	Teach students to challenge stereotypes	Assign groups that do not leave students of color isolated
remain neutral	Remain neutral during conversations about race	Do not ask students of any race to speak for their entire race
address race when it comes up	Be engaged in conversations about race	Talk with students individually about their racial experience in your class/school
being part of the conversation	Intentionally integrate issues of race in the curriculum/lesson plan	Class shared readings and texts from a wide range of cultures and perspectives
being flexible with the curriculum when race comes up	Acknowledge achievements of people of color	
intentionally planning to integrate issues of color and race	Be knowledgeable about racial issues	
have courageous conversations	Empower students, especially those of Color	
design instruction to include discussion of race		
knowing enough to discuss race competently and accurately		
empower students that they are capable and intelligent		
use teachable moments		
acknowledge achievements of people of color		

APPENDIX G

LIST OF CONNECTING TO THE LARGER WORLD STATEMENTS

Original List of statements	Revised List of Statements	Data Quality Check: Additions
Inspiration wall	Inspiration Wall	Show students role models from their own cultural and racial background
addressing race in unit plan	Use personal relationships with students to discuss their future	Talk with students about finding mentors and allies who will help them navigate their future paths
using your personal connection with students to talk about their future	Linking content to future careers	Introduce students to summer learning opportunities connected to their future paths
find ways to inspire	Let students know you care about them	Help students apply for college or other opportunities
incorporating multicultural figures into lessons	Help students to understand that there are many avenues to success	Discuss future pathways with parents so that they understand their child's potential
linking academic material to future careers	Show students that there are successful minorities	Help families navigate things like college applications or other special opportunities.
letting students know you care about them and their futures	Follow up with students about future careers	Connect curricular concepts to those who helped developed them
showing students multiple avenues to success	Encourage students to achieve their aspirations	Create opportunities to volunteer or complete community service as a part of curriculum
following up on professional aspirations		Have experts, authors, etc… Skype into classroom
talk to students about future		Have students complete inquiry projects several times
leave options open		

APPENDIX H

DEMOGRAPHIC AND RATING WORKSHEET

Have you participated in, or completed Students' Six professional development series?

- Yes
- No

Directions: Below is a list of teaching strategies. Please rate each of the statements on their ease of implementation and importance. The rating scales correspond to the following:

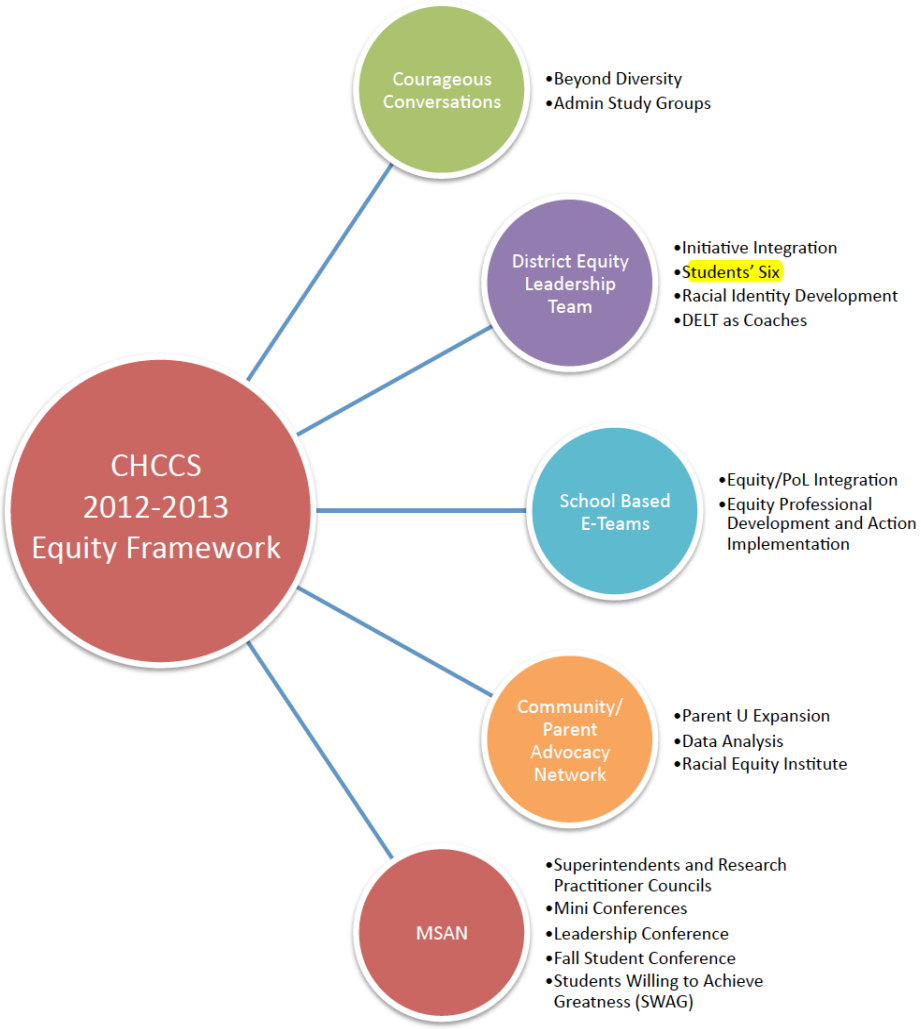
Implementation: 1-Very easy to implement on a daily basis….4-Very hard to implement on a daily basis.

Importance: 1-Not important for student success….4-Very important for student success. Please note, importance refers to the importance of the strategy for minority, student success.

Teaching Strategy	**Implementation**					**Importance**			
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4
	1	2	3	4		1	2	3	4

APPENDIX I

CHCCS 2012-2013 EQUITY FRAMEWORK



APPENDIX J

CHCCS 2013-2014 EQUITY PLAN

CHAPEL HILL-CARRBORO CITY SCHOOLS

2013-14 Equity Plan Overview

Priorities

1) Improving instruction and academic support for all students by integrating Student Six and other culturally relevant strategies with Principles of Learning, RtI and other elements of the instructional framework.

2) Reducing disproportionality of students of color in discipline referrals by integrating equity work and PBIS.

3) Supporting teachers and administrators of color.

Responsibilities of Schools
1) School Improvement Plan reflects efforts to improve achievement for students of color.
2) Work towards implementation of Student Six strategies to complement implementation of the Principles of Learning.
3) Create a school plan for reducing disciplinary referrals overall, with specific focus on groups that are represented with disproportionate numbers.
4) Work with Human Resources and Equity departments to support teachers and administrators of color.
5) Collaborate with Parent University to engage parents of color.
6) Hold E-Team meetings within the two weeks following each District Equity Leadership Team meeting.
7) Representation on District Equity Leadership Team by one administrator and one faculty member.
8) Enroll all new staff members in an Introduction to Equity course on PD360 with an in-person follow-up workshop lead by the school equity team.
9) Send all new administrators, E-team members, instructional coaches, and student services staff members to Beyond Diversity training.
10) High Schools: Support student organized efforts for equity through SWAG (Students Willing to Achieve Greatness student group).
11) High Schools: Participate in the Equal Opportunity Schools project to increase the enrollment of students of color in advanced classes. East and CHS 2013-14, CHHS 2014-15.

Responsibilities of Faculty
1) Utilization of evidence based culturally proficient instructional practices (or other culturally proficient practices appropriate to job role). These should include the Student Six and other strategies.
2) Embed culturally relevant lessons and examples into the taught curriculum as expected in the Teacher Evaluation Rubric Standard 2b.
3) Use fair and credible assessment practices to determine student progress, recognize accomplishments, and address gaps in student learning.
4) When analyzing academic and behavioral data within job roles or PLCs, look at data with an equity lens.
5) Make explicit connections between growth mindset and student effort in direct work with students as well as in assessment of student academic growth over time.
6) Build effective working relationships across lines of difference with students, families, and colleagues.
7) Participate in equity professional development sessions. All new staff members must complete Introduction to Equity. Schools determine additional requirements.

Responsibilities of E-Teams
1) Meet within two weeks of each DELT meeting (6 meetings in 2013-14); more often if necessary.
2) Provide an Introduction to Equity professional development session to all new staff members.
3) Lead equity professional development provided at the school site.
4) Coach colleagues for equity implementation through PLCs, other school teams, or individual sessions.

Find the full Equity Plan online at http://bit.ly/2013EquityPlan 1

Important Dates

8/23 - Schools submit E-Team membership list, meeting dates, and DELT reps
9/4 - Secondary School Equity Team Training
9/5 - Elementary School Equity Team Training
9/12 - Registration Deadline for Student Six Master Teacher Cohort
10/14 - DELT Meeting (E-Teams meet w/in 2 weeks)
10/28 - New staff begin Introduction to Equity online
11/8 - SIP due to Val Reinhardt
11/25 - DELT Meeting (E-Teams meet w/in 2 weeks)
12/12-13 Beyond Diversity
1/13 - DELT Meeting (E-Teams meet w/in 2 weeks)
2/13 - DELT Meeting (E-Teams meet w/in 2 weeks)
2/28 - Deadline for new staff and E-Teams to complete Introduction to Equity
3/10 - DELT Meeting (E-Teams meet w/in 2 weeks)

Selected Strategies for Addressing Focus Areas

Improving Instruction and Academic Support

- Use Student Six strategies and Principles of Learning in every classroom.
- Train math and literacy coaches in Student Six strategies.
- Document the connections between each principle of learning, RtI elements, and equity strategies.
- Include explicit references to equity in RtI trainings.
- Workshop for Principals and DELT that demonstrates the overlap between equity and RtI through data analysis and strategy examples. Demonstrating how to use RtI as a process while working towards equity goals.
- RtI teams and an equity teams work together to set overall school goals for eliminating achievement disparities.

Reducing Disproportionalities in Discipline

- Train E-Teams to lead a workshop examining disproportionality statistics at each school.
- Provide data, research and story-based resources that help all staff see that this is a challenge that must be addressed at the all levels within a school.
- Help teachers be reflective about what practices they undertake in the classroom that lead to racial disproportionality in discipline referrals.
- Use the Student Six strategies to reduce disciplinary challenges.
- Work with School Resource Officers to amend procedures that could reduce racial disproportionality of referrals to the criminal justice system.

Supporting Staff of Color

- Seek feedback from staff of color to determine what forms of support they would most appreciate. Seek feedback white staff to determine what they need to be more supportive to their colleagues.
- Proactively address the type of stereotyping and double-standards that result in staff of color facing criticism that their white colleagues would not face.
- Develop mechanisms for administrators to reflect on their own implicit biases and how those may lead to staff feeling unsupported.
- Assist administrators with developing skills for navigating conversations where issues related to job-performance feedback converge with issues related to race.
- Offer an invitational support group for teachers and administrators of color.
- Provide a list of unofficial "mentors" who are veteran or retired teachers of color who could provide informal support to teachers of color who seek out such support.

Additional Equity Strategies

- All new school staff will take an **Introduction to Equity** course on PD360 with an in-person follow up lead by their school's Equity Team.
- The **Student Six Master Teacher** professional development series allows any CHCCS teacher to deepen their skills for culturally proficient practice.
- All schools will have access to nationally-known experts on equitable schooling through an **Equity Coaching Cohort**.
- Multiple opportunities for **deepening equity leadership** within the district.
- **Parent University** engages parents in their schools and the **Community Parent Advocacy Network** giving parents of color an official advocacy voice.
- **Students Willing to Achieve Greatness (SWAG)** organizes high school students for action and advocacy to eliminate achievement disparities.
- Find out more in the **Full Equity Plan**.

APPENDIX K

EXCERPT FROM CHCCS FULL EQUITY PLAN ABOUT STUDENTS' SIX

Student Six will continue to be at the center of our equity work in 2013-14. The expectation is that every faculty member will begin to use the strategies in job appropriate ways. To support district-wide implementation, these steps are expected:

1. Implementation at every school. Schools can scaffold implementation with guidance from
Graig Meyer and Teresa Bunner. Once schools have watched the videos as an introduction, there are additional steps that can be taken to deepen understanding and practice. Schools may also want to draw on the expertise of staff members who have participated in the Student Six Master Teacher Training Cohort.

2. ISD administrators will deepen their own understanding of the Student Six and find ways
to integrate the Student Six with IFL, RtI, PBIS and other district initiatives.

3. School administrators should use the Student Six as a way to measure culturally proficient practice in accordance with Standard 2 B the Teacher Evaluation Rubric.

4. Student Six strategies will be included in Learning Walk and Observation documents.

5. We will once again offer a Master Teacher Cohort. This voluntary professional development opportunity is open to any educator in the school district. We recommend that Principals recruit a cohort of teachers from their school to participate. In seven afterschool workshops over the course of the school year, Master Teachers have the opportunity to deepen their understanding and expand their practice of the Student Six strategies. Workshops are lead by CHCCS middle and high school students. Participating staff members also must be observed by a colleague or observe a colleague to learn about in school implementation of Student Six strategies. Master teacher cohort sessions will be 4:45-6:30pm on the following dates…

APPENDIX L

STUDENTS' SIX COVER DOCUMENT

Students' Six: Teaching Strategies that Work for Students of Color

Graig Meyer • gmeyer@chccs.k12.nc.us
Teresa Bunner • tbunner@chccs.k12.nc.us
Chapel Hill-Carrboro City Schools • Chapel Hill, NC

Visibility	Engaging Students' Cultures
Proximity	Addressing Race
Connection to Students' Lives	Connection to Future Selves

The Students' Six: Strategies for Culturally Proficient Teaching

1. *Visibility*: Making every student feel acknowledged and included in the classroom

2. *Proximity*: Using physical space to engage students and reduce perceived threat

3. *Connecting to students' lives*: Making linkages between classroom content and student experiences and perspectives

4.*Engaging students' culture*: Incorporating positive elements of students' culture into classroom learning and community building

5.*Addressing race*: Talking openly about racial dynamics and how they impact the student experience

6.*Connecting to the larger world*: Helping students identify their future paths and using classroom experiences to guide students toward their personal goals

STUDENT VOICES

I only know one teacher, which is my US History teacher that really stands at the door and greets everybody. It makes me feel more welcomed to the class.

I learn better when my teacher is in the proximity of me. I am more engaged [and] as soon as class is over, if I need some help with some questions I can just be like, "excuse me can you help me out?"

I learn better when my teacher connects what we're learning with our day-to-day life. My U.S. History teacher would connect the Civil War with the Civil Rights Movement with the immigration movement that is happening today. And we were able to talk about the Dream Act and other things Hispanics are doing to try to get equal rights in the United States.

STUDENT VOICES

I like it when my teacher talks in Spanish or tries to connect with me in Spanish to make me realize that I'm not the only person in the classroom who isn't equal. To just be able to relate to someone more powerful than the students makes me feel better.

When a teacher doesn't address race, it creates a wall that makes we want to backtrack with whatever relationship we were trying to build. Most definitely I'm not going for help.

Before we even start with the subject, she goes on the website, and says, 'If you want to be an architect you're going to have to learn this.' And she shows us all the equations people have to learn, and then that gives us more of an idea why we're learning this. And it's not just something we're going to be tested on.

APPENDIX M

STUDENTS' SIX PRESS RELEASE

Pitch Script

Dear XXX,

I know you cover education news across the nation. I've got a story about an innovative academic program in North Carolina where students take action against the achievement gap by teaching their teachers how to be better educators.

Local news outlets in North Carolina have covered the story, but it would be of interest to readers nationwide because of the debates about public education going on across the country and because of the innovative role of students training teachers on how to teach. I have included the press release below. Would you be interested in setting up an interview with a program director to get more information about this story?

Thank you,
XXX

PRESS RELEASE BELOW

FOR IMMEDIATE RELEASE:
Dec. 12, 2013

CONTACT:
Teresa Bunner
Academic Support Specialist
919-918-2170 ext. 3
tbunner@chccs.k12.nc.us

CHAPEL HILL-CARRBORO STUDENTS TAKE INITIATIVE TO CLOSE ACHIEVEMENT GAP

CHAPEL HILL, N.C.—It is a typical afternoon in the Chapel Hill-Carrboro City Schools system, except the students aren't the ones learning.

On Nov. 7, the N.C. State Board of Education's Department of Public Instruction published a news release regarding academic growth in state public schools. While more than 71 percent of North Carolina public schools met academic growth expectations, test scores dropped due to more rigorous standards. This change in academic standards has ultimately led to a wider achievement gap between Caucasian and minority students, but CHCCS students are taking on the challenge of closing it.

Spearheading the initiative is a group of 20 high school students acting as teachers for 70 CHCCS faculty members. This interesting role reversal is part of a student-driven, student-led professional development series called Student Six. It was designed by Blue Ribbon Mentor-Advocate, a CHCCS academic support program, to help teachers use culturally proficient teaching strategies in their classrooms to facilitate learning for minority students.

"The initial discussions were facilitated with students because they were a voice left out of conversations on closing the achievement gap," said BRMA Academic Support Specialist Teresa Bunner. "If we are talking about student success, who better to talk to than the students? [They] had such powerful things to say that we wanted to find a way for them to share their voices with teachers and staff. That was the genesis of the professional development series."

Beginning in the spring of 2011, CHCCS Student Equity and Volunteer Services Director Graig Meyer and educational consultant Bonnie Davis began working with BRMA students to teach them research-based strategies for culturally proficient instruction. Through a collaborative process, the students identified a set of six strategies they believe to be most helpful to minority students: visibility, proximity, connecting to student's lives, engaging students' culture, addressing race, and connecting to future selves. These six strategies are the foundation of the Student Six program.

"[Student Six] has facilitated great reflection from the participants in last year's cohort and a desire to continue to learn and think about ways we can reach all students effectively," said Bunner.

After a successful first year, word spread fast throughout the CHCCS district about Student Six. In fact, program coordinators had to open more spots to accommodate the overwhelming number of teachers seeking to enroll in this year's series.

During the workshop series, teachers have the chance to collaborate with peers in their cohort and receive feedback from the participating students and staff as they begin to implement the strategies in their classrooms. The ultimate goal for the program is to have these participating students and teachers act as guides for other CHCCS faculty and staff members. Eventually, program coordinators hope to see the Student Six model implemented in other schools across the state and nation.

"I hope that we empower the student facilitators to be change agents in their world, and to encourage teachers to seek input from their own students about how to more effectively facilitate learning in their classrooms," said Bunner.

The Student Six workshop series is running now through April at Extraordinary Ventures in Chapel Hill.

Blue Ribbon Mentor-Advocate is a district-wide student support program designed to improve the achievement of African-American and Latino students by promoting success in multiple developmental realms. BRMA provides students with mentoring, advocacy, tutoring, social and cultural enrichment, college and career preparation, leadership development, and college scholarships. Since its inception in 1995, BRMA has been lauded for excellence in mentoring and school-community partnerships at the national, state, and local levels. For more information about getting involved with BRMA, visit the program's website at www.chccs.k12.nc.us/brma.

APPENDIX N

STUDENTS' SIX PD MODEL

Student Voices
Equity Professional Development Outline

Objectives:

- Improve instruction for students of color by promoting the use of research based and student validated teaching strategies.
- Build capacity within the district for equity professional development to be fostered by teacher-leaders identified by students of color.
- Allow teachers to work reflectively to identify their own strengths while learn from the perspectives of their students and the approaches of their peers.

History:

Beginning in the Spring of 2011, Graig Meyer and Bonnie Davis began working with BRMA students to teach them research-based strategies for culturally proficient instruction. Through a collaborative process, the BRMA students identified a set of six strategies they believe to be most helpful to students of color. During the fall of 2011, School Improvement Network filmed the students and teachers whom they identified as exemplars of these practices for a one-hour video professional development tool. BRMA staff Graig Meyer and Teresa Bunner have developed this plan for turning this process into an ongoing student-driven professional development model within the Chapel Hill-Carrboro City Schools.

Approach

BRMA staff will engage CHCCS teachers in a student-driven professional development model designed to help teachers use culturally proficient teaching strategies in their classrooms. We will engage a small group of teachers in a short series of professional development sessions where they work alongside students to understand the theory and practice associated with the six strategies identified by the initial group of students. Teachers will have the chance to collaborate with peers in their cohort and receive feedback from BRMA staff as they begin to implement the strategies in their classrooms. They will then develop a specific expertise that can be shared with the staff in their building and across the district. The initial teacher cohort will be made up of high school teacher exemplars identified by BRMA students. These initial teachers will be in a "Training of Trainers" model so that they can share this content within their schools and

help BRMA train subsequent groups of teachers. Subsequent cohorts will include teachers from other levels and teachers with a lower level of existing aptitude.

Theoretical Background:

Critical Race Theory tells us that students of color are successful where their culture is valued, their race is acknowledged, and specific attention is paid to their evolving racial identity[1]. Brain research adds that all students need specific stimulus to create an environment free of threat so that the brain can fully engage in learning[2]. The strategies used in this project create an underlying foundation for students of color that help them feel valued, engaged and embraced in the classroom. Using these strategies can be used across subject areas to help students access curricular content with more confidence and aptitude.

Student Voice:

This project is student-driven because they will be involved with all stages of project implementation and direct the focus of the work. Students were involved in the identification and exploration of the strategies, as well as the identification of teachers to highlight in the initial video and teachers to be invited to the initial Training of Trainers workshops. Going forward, we would like to include the MSAN student team to participate in the workshops and to identify additional teachers to participate in the project. By year 2, we would like the students to take a lead role in the workshop model. They will understand and explain to teachers the research behind the strategy while adding their personal perspective of what it means to be a student in the classroom experiencing that strategy.

Connection to District Initiatives:

This initiative helps to tie together the long-standing CHCCS focus on educational equity with the coming focus on effort-based learning. Additionally, this approach addresses teachers' most common question about equity work: "How do I apply this in my classroom?" The Institute For Learning emphasizes improving education and achievement of all students, especially those underserved. In CHCCS, our Equity initiative has made it clear that those underserved in our district our students of color. Therefore, it makes sense to have a component of our work to focus on strategies that work for helping students of color succeed in the classroom. BRMA staff will also participate in IFL activities within CHCCS to help ensure the integration of these two district initiatives.

Definition of Strategies:

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[1] Mary Stone Hanley and George Noblit. 2009. *Cultural Responsiveness, Racial Idenity, and Academic Success: A Review of the Literature.*

[2] Eric Jensen. 1998. *Teaching with the Brain in Mind.*

1. *Visibility*: Making every student feel acknowledged and included in the classroom.
2. *Proximity*: Using physical space to engage students and reduce perceived threat.
3. *Connecting to student's lives*: Making linkages between classroom content and student experiences and perspectives.
4. *Engaging students' culture*: Incorporating positive elements of students' culture into classroom learning and community building.
5. *Addressing race*: Talking openly about racial dynamics and how they impact the student experience.
6. *Connecting to future selves*: Helping students identify their future paths and using classroom experiences to guide students towards their personal goals.

APPENDIX O

STUDENTS' SIX ORIGINAL ITINERARY

Four 2hr sessions over the course of second semester

Objectives:

- Improve instruction for students of color by promoting the use of research based and student validated teaching strategies.
- Build capacity within the district for equity professional development to be fostered by teacher-leaders identified by students of color.
- Allow teachers to work reflectively to identify their own strengths while learn from the perspectives of their students and the approaches of their peers.

Session #1 (January)

Objectives:

- Review definition and research behind culturally proficient teaching strategies (proximity, visibility, connecting to student's lives).
- Share student voices (via video)

1. Welcome/Introductions 10min

2. Community Building 15min

3. Identify and review the Student Six 10min
    1. visibility
    2. proximity
    3. connecting to students' lives
    4. engaging students' culture
    5. addressing race
    6. connecting to the larger world

4. Introduction/Understanding Strategies 45min

- Strategy #1,2,3

- Share student voices about each strategy
- Small group discussion: What did you glean from video?
  How does what the students shared match your experience/research knowledge?

BREAK

JIGSAW: Research articles on strategies.
Focused discussion groups

5. Reflection: What would I like to focus on in my own classroom? 15min
Create an action plan.

6. Introduce observation protocol: 10min
(observations should occur before next session)
Option 1:
Observe another teacher in your training cohort.
Teresa Bunner-substitute teacher for your class.
Teachers debrief together.

Option 2:
Teresa Bunner observes your classroom.
Debrief with Ms. Bunner, teacher and student of color from the classroom.

7. Props 5min

Session #2 (Late February)

1. Welcome/Icebreaker 15min

2. Check In: Think/Write/Pair/Share 20min
How did your action plan work?
What successes would you like to celebrate?
What questions/concerns do you still have?

3. Quick review: Strategies #1-3 10min

4. Introduction/Understanding Strategies 45min
- Strategy #4 and 5

- Share student voices about each strategy
- Small group discussion: What did you glean from video?
  How does what the students shared match your experience/research knowledge?

BREAK

JIGSAW: Research articles on strategies.
Focused discussion groups

5. Reflection: What would I like to focus on in my own classroom? 20min
Create an action plan.

Think about observations (complete before next session)
6. Props 10min

Session #3 (Late March)

1. Welcome/Icebreaker 15min

2. Check In: (Find strategy for this) 20min
How did your action plan work?
What successes would you like to celebrate?
What questions/concerns do you still have?

3. Quick review: Strategies #4-5 10min

4. Introduction/Understanding Strategies 35min
- Strategy #6

- Share student voices about each strategy
- Small group discussion: What did you glean from video?
  How does what the students shared match your experience/research knowledge?

BREAK

JIGSAW: Research articles on strategies.
Focused discussion groups

5. Reflection: What would I like to focus on in my own classroom? 20min
Create an action plan.

Think about observations (complete before next session)

6. Props 10min

Session #4 (Late April/Early May)

1. Welcome/Icebreaker 15min

2. Check In: (Find strategy for this) 20min
How did your action plan work?
What successes would you like to celebrate?

What questions/concerns do you still have?

3. Self Reflection/Small Group Discussion: 30min

- Which of the Student Six are easy for you to incorporate? What makes you say that?
- Which of the Student Six are hard for you to incorporate? Why?
- What has been the most valuable lesson for you in this process?
- What further support would you like in being a more culturally responsive educator?
- What is one thought you would like to share with fellow colleagues about this journey?

BREAK

4. Student Video?

5. Considerations for the district

- What implications does our work here have for the CHCCS district?

6. Celebrate Participants

Budget Needs:

- $400 for food
- Copies of *How to Teach Students Who Don't Look Like You* by Bonnie Davis ($40 each)
- Printed materials

Questions/Considerations:

Who should attend? (up to 20 Student identified teachers, DELT members)

Can they receive Renewal Credit? (Yes, through district PD office)

How can we prepare teachers to be receptive to student voices? Could we incorporate "live" students at one or all of the sessions? (Yes, include students in all sessions. Ms. Bunner will do additional preparation work with students prior to each session.)

APPENDIX P

ORIGINAL INVITATION LIST: TEACHERS

These teachers were identified by BRMA students as teachers who already use some of the six strategies.

CHHS:
6 Teachers
East:
8 Teachers

Carrboro High:
7 Teachers

In addition, we will invite members of the District Equity Leadership Team.

APPENDIX Q

SAMPLE AGENDA

Student Six Agenda
Master Teaching Cohort
Session 1, October 23, 2014

1. **Welcome/Introductions**
   15 min
   a. Research Study
2. **Getting to Know Our Community**
   10 min
3. **Grounding Our Work**
   20 min

   Setting Norms
   Why do we do this work?
   Read-(When you are done, please take a break.)
   Invisible Knapsack
   Rethinking Culturally Responsive Pedagogy
   https://www.gse.upenn.edu/equity/blog/rethinking_culturally

   Break
   5 min
4. **Table Group:**
   15 min

   Debrief the articles.
   Focused discussion groups
   Share Out 1 key idea from each table group

5. **Student Six Strategies:**
   30 min

   Reflection sheet

   Strategy# 1-Visibility
   Student perspective
   Large group share
   Create strategy list
   Post session evaluation (required)

6. **Props/Prize Basket**
   5 min

NEXT SESSION: November 13, 2014

APPENDIX R

AGENDA TEMPLATE

Student Six Agenda
Session #, Date

4-4:15 **Opening/Dinner**
Reflection, icebreaker with table

4:15-4:35 **Community Building Activity**
Activity with table or group related to the topic discussed that day

4:40-5:45
Article Review/Related Activity
Introduce/Discuss Concepts
Student share out
Students share their perspective and experiences with topic discussed that day
Reflection

5:50-6:00 **Props/prize basket**

NEXT SESSION: Date, Time, Location

APPENDIX S

LETTER OF SUPPORT

CHAPEL HILL-CARRBORO CITY SCHOOLS

Office of Testing and Program Evaluation
Chapel Hill-Carrboro City Schools
750 South Merritt Mill Road
Chapel Hill, North Carolina 27516
(P) 919.967.8211 (F) 919.918.7096

October 5, 2014

The University of NC at Greensboro
The Office of Research Integrity
2714 MHRA Building
1111 Spring Garden St.
Greensboro, NC 27412

UNCG IRB Review Committee:

Re: Letter of Support for Students' Six Evaluation

As the Executive Director of Testing and Program Evaluation at Chapel Hill-Carrboro City Schools, I approve and support the Students' Six Evaluation that will be conducted by Kshawna Askew. This letter is to provide permission for Kshawna Askew to collect and analyze data (focus group interviews, surveys, and construct mapping activities) from Students' Six current and past participants, and present these analyses for dissertation. As the consent form for the study indicates, there are no direct benefits or noteworthy risks to participants in this study. I understand the project proposal will be reviewed and approved by UNCG's Institutional Review Board for Research Involving Human Participants prior to data collection.

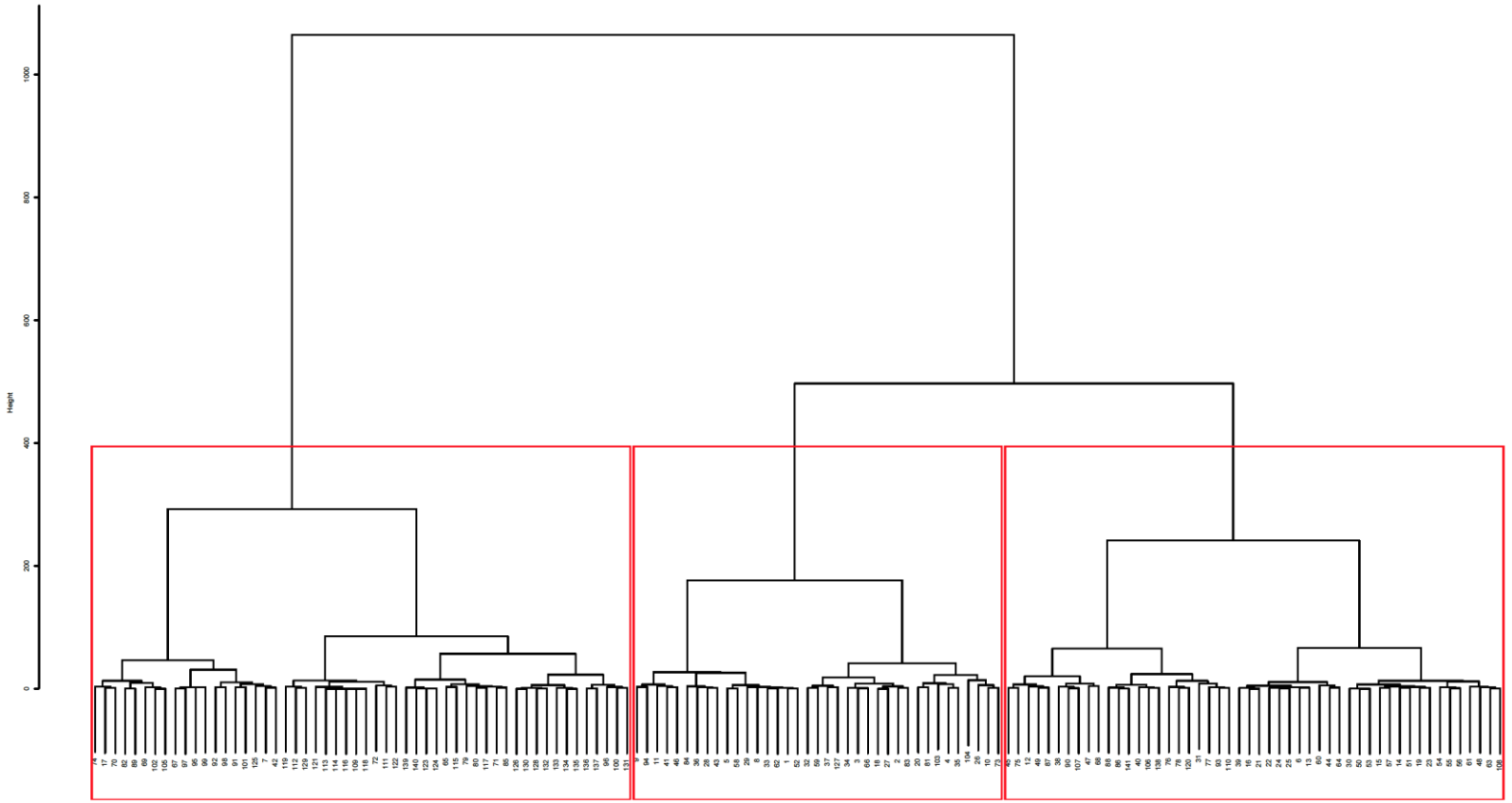
If you need further information in support of this project please contact me at (919) 967-8211, ext. 34409.

Sincerely,

Diane Villwock, Ph.D.
Executive Director
Testing & Program Evaluation

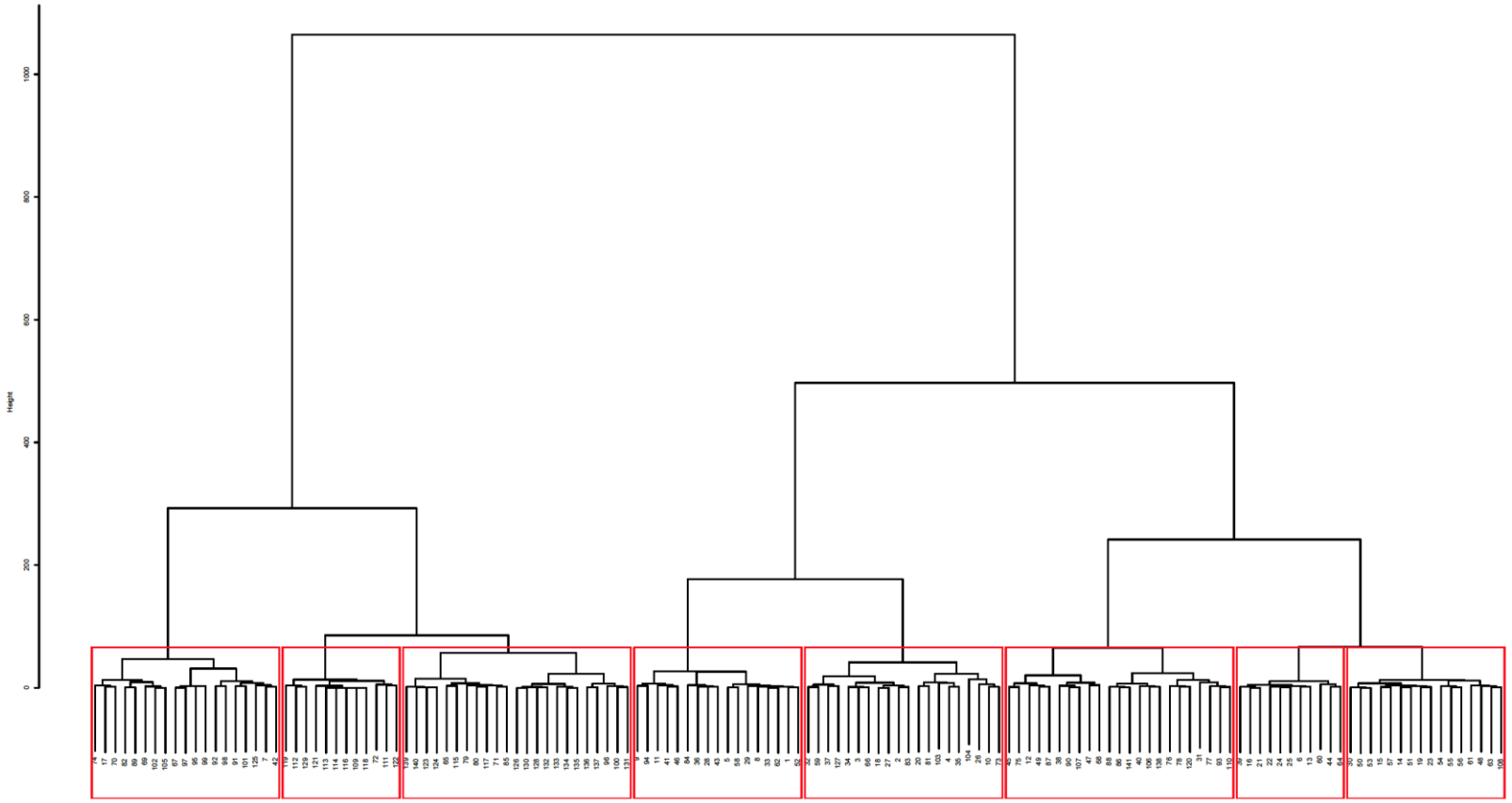
APPENDIX T

DENDOGRAM: 3-CLUSTER SOLUTION



APPENDIX U

DENDOGRAM: 8-CLUSTER SOLUTION



APPENDIX V

R CODE

```
#Read in Data, load necessary package, assign variable names
library(mcclust) #update is lpsolve
library(calibrate) #update is MASS
data1<-read.table("groupingtobeanalyzed.txt") #each persons sort
data1
data2<-read.table("ratingtobeanalyzed.csv", header=T, sep=",") #average ease of
 implementation and importance for each statement, Make sure it's labeled Ease of
 Implementation and Importance
data2

n.col=ncol(data1) #number of people
n.col
n.row=nrow(data1) #number of statements
n.row

PersonSimMatrix<-function(){apply(data1,2,cltoSim)}
GroupSimMatrix<-function(){matrix(rowSums(PersonSimMatrix()), ncol=n.row)}
DisSimMatrix<-function(){n.col-GroupSimMatrix()}
EucDistance<-function(){dist(DisSimMatrix())}
MDS<-function(){cmdscale(EucDistance(), eig=TRUE, k=2)}

x<-MDS()$points[,1]
y<-MDS()$points[,2]

clust<-(hclust(dist(MDS()$points), method="ward.D"))
par(cex=0.3) #makes item IDs smaller
plot(clust)
n.clus= 8 #changed this number and re-ran for demonstrations of different clusters
groups <- cutree(clust, k=n.clus)
rect.hclust(clust, k=n.clus, border="red")

points2plot<-cbind(1:n.row, MDS()$points, groups, data2$Ease.of.Implementation,
 data2$Importance)

#plots points
plot(MDS()$points, type="p", cex=.7, pch=19)
textxy(MDS()$points[,1], MDS()$points[,2], points2plot[,1], cex=2, offset=1)

#points by group
plot(MDS()$points, type="p", cex=.7, col=groups, pch=19)
textxy(MDS()$points[,1], MDS()$points[,2], points2plot[,1], cex=2, offset=1)

#implementation and importance
```

```
plot(points2plot[,5],points2plot[,6], type="p",cex =.7,col=groups, pch=15)
textxy(points2plot[,5], points2plot[,6], points2plot[,1],
cex=.5)

#re-ran for each number of clusters
points2plotdf<-data.frame(points2plot[,1:6])
write.table(points2plotdf,"pointswalldata8groups.txt",row.names=TRUE, quote=FALSE,
 sep=" ") #table with item and group

#Go Zones
group1<-read.table("group1.csv", sep=",", header=T)
plot(group1$Implementation, group1$importance, xlab="Implementation",
ylab="Importance", xlim=c(1.5,3.5),
ylim=c(1.5,3.5))
abline(h=mean(group1$Implementation), v=mean(group1$Importance))
textxy(group1[,5], group1[,6], group1[,1], cx=.07)

plot(group1$Implementation, group1$importance, xlab="Implementation",
ylab="Importance", pch=19)
abline(h=mean(group1$Implementation), v=mean(group1$Importance))
textxy(group1[,5], group1[,6], group1[,1], pos=1, cex=.5)

group2<-read.table("group2.csv", sep=",", header=T)
plot(group2$Implementation, group2$importance, xlab="Implementation",
ylab="Importance", pch=19)
abline(h=mean(group2$Implementation), v=mean(group2$Importance))
textxy(group2[,2], group2[,3], group2[,1], pos=1, cex=.5)

#averages for each group
group1implementation<-2.221895425
group1importance<-2.788888889
group2implementation<-2.351527778
group2importance<-2.954861111
group3implementation<-2.066666667
group3importance<-2.926262626
group4implementation<-2.909064327
group4importance<-3.095614035
group5implementation<-2.565821256
group5importance<- 2.914855072
group6implementation<-1.971354167
group6importance<-3.014583333
group7implementation<-2.785058661
group7importance<-3.132125604
group8implementation<-2.650297619
group8importance<-3.245535714

#ggplot
```

```
library(ggplot2)
library(gridExtra)

#group1 2.22, 2.79
group1<-read.table("group1.csv", sep=",", header=T)
graph<-ggplot(group1, aes(x=Implementation, y=Importance, label=group1[,1]))
#creating blank background
graph1<-graph+geom_rect(aes(xmin=0,xmax=2.22,ymin=0,ymax=2.79),
 fill="red")+theme(panel.grid.major=element_blank(), panel.grid.minor=element_blank(),
 panel.background=element_blank(), axis.line=element_line(color="black"))
#adding quadrants
graph2<-graph1+geom_rect(aes(xmin=2.22,xmax=4,ymin=0,ymax=2.79), fill="yellow")
graph3<-graph2+geom_rect(aes(xmin=0,xmax=2.22,ymin=2.79,ymax=4), fill="white")
graph4<-graph3+geom_rect(aes(xmin=2.22,xmax=4,ymin=2.79,ymax=4), fill="green")
graph5<-graph4+geom_point(shape=1)+geom_text(aes(label=group1[,1]), hjust=1,
 vjust=1)+ggtitle("Cluster 1: Implementation vs Importance")

#group2 2.35, 2.95
group2<-read.table("group2.csv", sep=",", header=T)
graph<-ggplot(group2, aes(x=Implementation, y=Importance, label=group2[,1]))
#creating blank background
graph1<-graph+geom_rect(aes(xmin=0,xmax=2.35,ymin=0,ymax=2.95),
 fill="red")+theme(panel.grid.major=element_blank(), panel.grid.minor=element_blank(),
 panel.background=element_blank(), axis.line=element_line(color="black"))
#adding quadrants
graph2<-graph1+geom_rect(aes(xmin=2.35,xmax=4,ymin=0,ymax=2.95), fill="yellow")
graph3<-graph2+geom_rect(aes(xmin=0,xmax=2.35,ymin=2.95,ymax=4), fill="white")
graph4<-graph3+geom_rect(aes(xmin=2.35,xmax=4,ymin=2.95,ymax=4), fill="green")
graph5<-graph4+geom_point(shape=1)+geom_text(aes(label=group2[,1]), hjust=1,
 vjust=1)+ggtitle("Cluster 2: Implementation vs Importance")


#group3 2.07, 2.93
group3<-read.table("group3.csv", sep=",", header=T)
graph<-ggplot(group3, aes(x=Implementation, y=Importance, label=group3[,1]))
#creating blank background
graph1<-graph+geom_rect(aes(xmin=0,xmax=2.07,ymin=0,ymax=2.93),
 fill="red")+theme(panel.grid.major=element_blank(), panel.grid.minor=element_blank(),
 panel.background=element_blank(), axis.line=element_line(color="black"))
#adding quadrants
graph2<-graph1+geom_rect(aes(xmin=2.07,xmax=4,ymin=0,ymax=2.93), fill="yellow")
graph3<-graph2+geom_rect(aes(xmin=0,xmax=2.07,ymin=2.93,ymax=4), fill="white")
graph4<-graph3+geom_rect(aes(xmin=2.07,xmax=4,ymin=2.93,ymax=4), fill="green")
graph5<-graph4+geom_point(shape=1)+geom_text(aes(label=group3[,1]), hjust=1,
 vjust=1)+ggtitle("Cluster 3: Implementation vs Importance")


#group4 2.91, 3.10
```

```
group4<-read.table("group4.csv", sep=",", header=T)
graph<-ggplot(group4, aes(x=Implementation, y=Importance, label=group4[,1]))
#creating blank background
graph1<-graph+geom_rect(aes(xmin=0,xmax=2.91,ymin=0,ymax=3.1),
 fill="red")+theme(panel.grid.major=element_blank(), panel.grid.minor=element_blank(),
 panel.background=element_blank(), axis.line=element_line(color="black"))
#adding quadrants
graph2<-graph1+geom_rect(aes(xmin=2.91,xmax=4,ymin=0,ymax=3.1), fill="yellow")
graph3<-graph2+geom_rect(aes(xmin=0,xmax=2.91,ymin=3.1,ymax=4), fill="white")
graph4<-graph3+geom_rect(aes(xmin=2.91,xmax=4,ymin=3.1,ymax=4), fill="green")
graph5<-graph4+geom_point(shape=1)+geom_text(aes(label=group4[,1]), hjust=1,
 vjust=1)+ggtitle("Cluster 4: Implementation vs Importance")

#group5 2.57, 2.91
group5<-read.table("group5.csv", sep=",", header=T)
graph<-ggplot(group5, aes(x=Implementation, y=Importance, label=group5[,1]))
#creating blank background
graph1<-graph+geom_rect(aes(xmin=0,xmax=2.57,ymin=0,ymax=2.91),
 fill="red")+theme(panel.grid.major=element_blank(), panel.grid.minor=element_blank(),
 panel.background=element_blank(), axis.line=element_line(color="black"))
#adding quadrants
graph2<-graph1+geom_rect(aes(xmin=2.57,xmax=4,ymin=0,ymax=2.91), fill="yellow")
graph3<-graph2+geom_rect(aes(xmin=0,xmax=2.57,ymin=2.91,ymax=4), fill="white")
graph4<-graph3+geom_rect(aes(xmin=2.57,xmax=4,ymin=2.91,ymax=4), fill="green")
graph5<-graph4+geom_point(shape=1)+geom_text(aes(label=group5[,1]), hjust=1,
 vjust=1)+ggtitle("Cluster 5: Implementation vs Importance")

#group6 1.97, 3.01
group6<-read.table("group6.csv", sep=",", header=T)
graph<-ggplot(group6, aes(x=Implementation, y=Importance, label=group6[,1]))
#creating blank background
graph1<-graph+geom_rect(aes(xmin=0,xmax=1.97,ymin=0,ymax=3.01),
 fill="red")+theme(panel.grid.major=element_blank(), panel.grid.minor=element_blank(),
 panel.background=element_blank(), axis.line=element_line(color="black"))
#adding quadrants
graph2<-graph1+geom_rect(aes(xmin=1.97,xmax=4,ymin=0,ymax=3.01), fill="yellow")
graph3<-graph2+geom_rect(aes(xmin=0,xmax=1.97,ymin=3.01,ymax=4), fill="white")
graph4<-graph3+geom_rect(aes(xmin=1.97,xmax=4,ymin=3.01,ymax=4), fill="green")
graph5<-graph4+geom_point(shape=1)+geom_text(aes(label=group6[,1]), hjust=1,
 vjust=1)+ggtitle("Cluster 6: Implementation vs Importance")

#group7 2.79, 3.13
group7<-read.table("group7.csv", sep=",", header=T)
graph<-ggplot(group7, aes(x=Implementation, y=Importance, label=group7[,1]))
#creating blank background
graph1<-graph+geom_rect(aes(xmin=0,xmax=2.79,ymin=0,ymax=3.13),
 fill="red")+theme(panel.grid.major=element_blank(), panel.grid.minor=element_blank(),
 panel.background=element_blank(), axis.line=element_line(color="black"))
```

```
#adding quadrants
graph2<-graph1+geom_rect(aes(xmin=2.79,xmax=4,ymin=0,ymax=3.13), fill="yellow")
graph3<-graph2+geom_rect(aes(xmin=0,xmax=2.79,ymin=3.13,ymax=4), fill="white")
graph4<-graph3+geom_rect(aes(xmin=2.79,xmax=4,ymin=3.13,ymax=4), fill="green")
graph5<-graph4+geom_point(shape=1)+geom_text(aes(label=group7[,1]), hjust=1,
 vjust=1)+ggtitle("Cluster 7: Implementation vs Importance")

#group8 2.65, 3.25
group8<-read.table("group8.csv", sep=",", header=T)
graph<-ggplot(group8, aes(x=Implementation, y=Importance, label=group8[,1]))
#creating blank background
graph1<-graph+geom_rect(aes(xmin=0,xmax=2.65,ymin=0,ymax=3.25),
 fill="red")+theme(panel.grid.major=element_blank(), panel.grid.minor=element_blank(),
 panel.background=element_blank(), axis.line=element_line(color="black"))
#adding quadrants
graph2<-graph1+geom_rect(aes(xmin=2.65,xmax=4,ymin=0,ymax=3.25), fill="yellow")
graph3<-graph2+geom_rect(aes(xmin=0,xmax=2.65,ymin=3.25,ymax=4), fill="white")
graph4<-graph3+geom_rect(aes(xmin=2.65,xmax=4,ymin=3.25,ymax=4), fill="green")
graph5<-graph4+geom_point(shape=1)+geom_text(aes(label=group8[,1]), hjust=1,
 vjust=1)+ggtitle("Cluster 8: Implementation vs Importance")

#graph2<-graph1+geom_vline(xintercept=2)
#graph3<-graph2+geom_hline(yintercept=2)
#graph3

#Overall
#group8 2.44, 3.01
group8<-read.table("overallrating8.csv", sep=",", header=T)
graph<-ggplot(group8, aes(x=Implementation, y=Importance, label=group8[,1]))
#creating blank background
graph1<-graph+geom_rect(aes(xmin=0,xmax=2.44,ymin=0,ymax=3.01),
 fill="red")+theme(panel.grid.major=element_blank(), panel.grid.minor=element_blank(),
 panel.background=element_blank(), axis.line=element_line(color="black"))
#adding quadrants
graph2<-graph1+geom_rect(aes(xmin=2.44,xmax=4,ymin=0,ymax=3.01), fill="yellow")
graph3<-graph2+geom_rect(aes(xmin=0,xmax=2.44,ymin=3.01,ymax=4), fill="white")
graph4<-graph3+geom_rect(aes(xmin=2.44,xmax=4,ymin=3.01,ymax=4), fill="green")
graph5<-graph4+geom_point(color=group8[,2])+ggtitle("Overall: Implementation vs
 Importance")
graph6<-graph5+guide_legend()
```